



17.5 Intel Material Declaration Data Sheets

The Material Declaration Data Sheets (MDDS) contained in this chapter are based upon the format established by the Electronic Industries Alliance (EIA), The European Information and Communication Technology Association (EICTA) and the Japan Green Procurement Survey Standardization Initiative (JGPSSI). This format is published as the Joint Industry Guide for Material Composition Declaration and can be found at: <http://www.eia.org/resources/2003-09-19.10.pdf>

Most of the data sheets contained in this chapter are based on third-party analytical testing of the product specified in footnote #2 of each MDDS. If a product is not specified in footnote #2, the data listed in that MDDS are based on engineering estimates. Data sheets are organized by representative package types which cover the range of similar products. Since multiple products may be covered by a data sheet, data are reported in parts per million (ppm). Mass of the product is provided. Mass of individual materials can be calculated by the user as needed.

MDDSs for other package families will be added to this chapter as they become available. In addition, existing MDDSs will be updated periodically as additional data becomes available. Users of MDDS are responsible for consulting this chapter regularly to ensure they are using the most recent MDDS version.

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May 2006

To whom it may concern:

Intel manufactures a wide range of products, from microprocessors, through embedded controllers, up to complete OEM systems. A large number of subassemblies and components are purchased from other manufacturers. Intel goes to great lengths to make sure all our products meet applicable legal requirements, and we continually monitor changes in those requirements. We have surveyed our products, and to the best of our knowledge, Intel products are in compliance with all applicable national and international laws and regulations, including those that may restrict the materials content of certain products.

Intel is frequently asked by its customer base about the presence of certain materials in its products. To the best of our knowledge, the following materials are not present in Intel products and are restricted by Intel's Environmental Product Content Specification for Suppliers and Outsourced Manufacturers (<http://supplier.intel.com/ehs/environmental.htm>):

- Asbestos
- Certain Azo Colorants
- Cadmium compounds (except as a plastic stabilizer where content must be < 100 ppm)
- Mercury compounds
- Ozone Depleting Substances (ODS)
- Polybrominated biphenyls and their ethers (PBB, PBDE)
- Polychlorinated biphenyls and terphenyls (PCB, PCT)
- Polychlorinated naphthalenes
- Short-chained chlorinated paraffins
- Tributyl tin (TBT) and Triphenyl tin (TPT)
- Tributyl tin oxide (TBTO)
- Hexavalent chromium

The information provided regarding the material content of our products is true and correct to the best of our knowledge and Intel has systems and due diligence processes in place to determine the content of our products and ensure compliance with all applicable laws and regulations. Furthermore, where Intel has identified products as RoHS compliant in the attached Material Declaration Data Sheets (MDDS), Intel defines RoHS compliance as Lead and other banned materials in the EU RoHS directive are either (1) below all applicable substance thresholds as proposed by the EU or (2) an approved exemption applies. (Note: RoHS implementing details are not fully defined and may change.)

Sincerely,

A handwritten signature in cursive script that reads "Linda Young".

Linda Young
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Material Declaration Data Sheet

FCBGA
 Flip Chip Ball Grid Array
 PinCount: 1012
 Pb Free Product: No

Product Weight (grams): 8.2
 Manufacturer: Intel Corporation
 Revision Date: 4/23/2006

Restrictions on Hazardous Substances (RoHS) Compliance

RoHS Definition

- * Quantity limit of 0.1% by mass (1000 PPM) of homogeneous material for: Lead (Pb), Mercury, Hexavalent Chromium, Polybrominated Biphenyls (PBB), Polybrominated Diphenyl Ethers (PBDE)
- * Quantity limit of 0.01% by mass (100 PPM) of homogeneous material for: Cadmium

Intel understands RoHS requires: Lead and other materials banned in RoHS Directive are either (1) below all applicable substance thresholds as defined by the EU or (2) an approved/pending exemption applies. (Note: RoHS implementation details are not fully defined and may change.)

RoHS Declaration

* The part does not contain RoHS restricted substances per the definition above except lead, which is used under the following exemption: Lead in solders for servers, storage and storage array systems, network infrastructure equipment for switching, signaling, transmission as well as network management for telecommunications. The applicability of this exemption depends on use of the part in one of the listed exempt applications.

Where the part is declared to meet RoHS requirements, it has been verified to be in conformance with 2002/95/EC as we currently understand the requirements. Intel has systems in place to verify conformance with all applicable environmental requirements and to the best of our knowledge the information is true and correct.

LEVEL A MATERIALS AND SUBSTANCES

Materials from Annex A of the EIA/EICTA/JGPSSI Material Composition Declaration Guide and listed in the table below are not contained in this product in quantities above the threshold level for these materials as stated in the EIA/EICTA/JGPSSI Material Composition Declaration Guide, nor intentionally added to this product.

Asbestos	Mercury / Mercury Compounds	Polychlorinated Naphthalenes
Azo colorants	Ozone Depleting Substances	Radioactive Substances
Cadmium / Cadmium Compounds	Polybrominated Biphenyls (PBBs)	Shortchain Chlorinated Paraffins
Hexavalent Chromium	Polybrominated Diphenylethers (PBDEs)	Tributyl Tin (TBT) and Triphenyl Tin (TPT)
Hexavalent Chromium Compounds	Polychlorinated Biphenyls (PCBs)	Tributyl Tin Oxide (TBTO)

If this product contains lead (Pb) above the threshold limit of 1000 ppm, the concentration, location and use for this product are listed below.

	Description of Use	Location in Product	Material Concentration (ppm)
Lead/Lead Compounds	C4 die bump/substrate solder/BGA ball/DSC paste	FLI / SLI / DSC	33700

LEVEL B MATERIALS AND SUBSTANCES

Antimony/Antimony Compounds	Bismuth/Bismuth Compounds	Phthalates
Arsenic/Arsenic Compounds	Brominated Flame Retardants	Selenium/Selenium Compounds
Beryllium/Beryllium Compounds	Nickel/Nickel Compounds	Vinyl Chloride Polymer (PVC)

If this product contains materials listed in Annex B of the EIA/EICTA/JGPSSI Material Composition Declaration Guide above the threshold level of 1000 ppm, those materials/substances are listed below.

	Description of Use	Location in Product	Material Concentration (ppm)
Brominated Flame Retardant	Flame retardant	Substrate	15900
Nickel	Plating	Substrate	3070

COMMENTS

1. The data on Level A and B materials and substances are based on analytical testing of the following package: FCBGA 1012, Product Code Name KW82870SH (42.5mm x 42.5mm). Individual unit test results may vary due to differences in production and /or sensitivities of analytical testing methods. Data shown on this MDDS reflect part-level testing intended to validate Intel's RoHS compliance systems. Intel's certification of RoHS compliance at the homogenous material level is based on Supplier Declarations of Conformance.

2. This data sheet is based on the product specified and other packages are assumed to be similar.

3. Data in parts per million (ppm) can be used to estimate content for other packages assumed to be similar.

4. Material mass can be estimated by multiplying concentration (ppm) by product weight.

5. The remainder of this package consists of non-reportable metals (e.g., tin, iron, etc), epoxy resin and other non-metal materials.

INTEL ACCEPTS NO DUTY TO UPDATE THIS MDDS OR TO NOTIFY USERS OF THIS MDDS OF UPDATES OR CHANGES TO THIS MDDS. INTEL SHALL NOT BE LIABLE FOR ANY DAMAGES, DIRECT OR INDIRECT, CONSEQUENTIAL OR OTHERWISE, SUFFERED BY USERS OR THIRD PARTIES AS A RESULT OF THE USERS RELIANCE ON INFORMATION IN THIS MDDS THAT HAS BEEN UPDATED OR CHANGED.



Material Declaration Data Sheet

FCBGA
 Flip Chip Ball Grid Array
 PinCount: 1357
 Pb Free Product: No

Product Weight (grams): 12.2
 Manufacturer: Intel Corporation
 Revision Date: 4/23/2006

Restrictions on Hazardous Substances (RoHS) Compliance

RoHS Definition

- * Quantity limit of 0.1% by mass (1000 PPM) of homogeneous material for: Lead (Pb), Mercury, Hexavalent Chromium, Polybrominated Biphenyls (PBB), Polybrominated Diphenyl Ethers (PBDE)
- * Quantity limit of 0.01% by mass (100 PPM) of homogeneous material for: Cadmium

Intel understands RoHS requires: Lead and other materials banned in RoHS Directive are either (1) below all applicable substance thresholds as defined by the EU or (2) an approved/pending exemption applies. (Note: RoHS implementation details are not fully defined and may change.)

RoHS Declaration

* The part does not contain RoHS restricted substances per the definition above except lead, which is used under the following exemption: Lead in solders for servers, storage and storage array systems, network infrastructure equipment for switching, signaling, transmission as well as network management for telecommunications. The applicability of this exemption depends on use of the part in one of the listed exempt applications.

Where the part is declared to meet RoHS requirements, it has been verified to be in conformance with 2002/95/EC as we currently understand the requirements. Intel has systems in place to verify conformance with all applicable environmental requirements and to the best of our knowledge the information is true and correct.

LEVEL A MATERIALS AND SUBSTANCES

Materials from Annex A of the EIA/EICTA/JGPSSI Material Composition Declaration Guide and listed in the table below are not contained in this product in quantities above the threshold level for these materials as stated in the EIA/EICTA/JGPSSI Material Composition Declaration Guide, nor intentionally added to this product.

Asbestos	Mercury / Mercury Compounds	Polychlorinated Naphthalenes
Azo colorants	Ozone Depleting Substances	Radioactive Substances
Cadmium / Cadmium Compounds	Polybrominated Biphenyls (PBBs)	Shortchain Chlorinated Paraffins
Hexavalent Chromium	Polybrominated Diphenylethers (PBDEs)	Tributyl Tin (TBT) and Triphenyl Tin (TPT)
Hexavalent Chromium Compounds	Polychlorinated Biphenyls (PCBs)	Tributyl Tin Oxide (TBTO)

If this product contains lead (Pb) above the threshold limit of 1000 ppm, the concentration, location and use for this product are listed below.

	Description of Use	Location in Product	Material Concentration (ppm)
Lead/Lead Compounds	C4 die bump/substrate solder/BGA ball/DSC paste	FLI / SLI / DSC	35200

LEVEL B MATERIALS AND SUBSTANCES

Antimony/Antimony Compounds	Bismuth/Bismuth Compounds	Phthalates
Arsenic/Arsenic Compounds	Brominated Flame Retardants	Selenium/Selenium Compounds
Beryllium/Beryllium Compounds	Nickel/Nickel Compounds	Vinyl Chloride Polymer (PVC)

If this product contains materials listed in Annex B of the EIA/EICTA/JGPSSI Material Composition Declaration Guide above the threshold level of 1000 ppm, those materials/substances are listed below.

	Description of Use	Location in Product	Material Concentration (ppm)
Brominated Flame Retardant	Flame retardant	Substrate	10400
Nickel	Plating	Substrate	3090

COMMENTS

1. The data on Level A and B materials and substances are based on analytical testing of the following package: FCBGA 1357, Product Code Name KW828709MC (49.5mm x 49.5mm). Individual unit test results may vary due to differences in production and /or sensitivities of analytical testing methods. Data shown on this MDDS reflect part-level testing intended to validate Intel's RoHS compliance systems. Intel's certification of RoHS compliance at the homogenous material level is based on Supplier Declarations of Conformance.

2. This data sheet is based on the product specified and other packages are assumed to be similar.

3. Data in parts per million (ppm) can be used to estimate content for other packages assumed to be similar.

4. Material mass can be estimated by multiplying concentration (ppm) by product weight.

5. The remainder of this package consists of non-reportable metals (e.g., tin, iron, etc), epoxy resin and other non-metal materials.

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Material Declaration Data Sheet

FCBGA
 Flip Chip Ball Grid Array
 PinCount: 567
 Pb Free Product: No

Product Weight (grams): 3.6
 Manufacturer: Intel Corporation
 Revision Date: 4/23/2006

Restrictions on Hazardous Substances (RoHS) Compliance

RoHS Definition

- * Quantity limit of 0.1% by mass (1000 PPM) of homogeneous material for: Lead (Pb), Mercury, Hexavalent Chromium, Polybrominated Biphenyls (PBB), Polybrominated Diphenyl Ethers (PBDE)
- * Quantity limit of 0.01% by mass (100 PPM) of homogeneous material for: Cadmium

Intel understands RoHS requires: Lead and other materials banned in RoHS Directive are either (1) below all applicable substance thresholds as defined by the EU or (2) an approved/pending exemption applies. (Note: RoHS implementation details are not fully defined and may change.)

RoHS Declaration

* The part does not contain RoHS restricted substances per the definition above except lead, which is used under the following exemption: Lead in solders for servers, storage and storage array systems, network infrastructure equipment for switching, signaling, transmission as well as network management for telecommunications. The applicability of this exemption depends on use of the part in one of the listed exempt applications.

Where the part is declared to meet RoHS requirements, it has been verified to be in conformance with 2002/95/EC as we currently understand the requirements. Intel has systems in place to verify conformance with all applicable environmental requirements and to the best of our knowledge the information is true and correct.

LEVEL A MATERIALS AND SUBSTANCES

Materials from Annex A of the EIA/EICTA/JGPSSI Material Composition Declaration Guide and listed in the table below are not contained in this product in quantities above the threshold level for these materials as stated in the EIA/EICTA/JGPSSI Material Composition Declaration Guide, nor intentionally added to this product.

Asbestos	Mercury / Mercury Compounds	Polychlorinated Naphthalenes
Azo colorants	Ozone Depleting Substances	Radioactive Substances
Cadmium / Cadmium Compounds	Polybrominated Biphenyls (PBBs)	Shortchain Chlorinated Paraffins
Hexavalent Chromium	Polybrominated Diphenylethers (PBDEs)	Tributyl Tin (TBT) and Triphenyl Tin (TPT)
Hexavalent Chromium Compounds	Polychlorinated Biphenyls (PCBs)	Tributyl Tin Oxide (TBTO)

If this product contains lead (Pb) above the threshold limit of 1000 ppm, the concentration, location and use for this product are listed below.

	Description of Use	Location in Product	Material Concentration (ppm)
Lead/Lead Compounds	C4 die bump/substrate solder/BGA ball/DSC paste	FLI / SLI / DSC	63900

LEVEL B MATERIALS AND SUBSTANCES

Antimony/Antimony Compounds	Bismuth/Bismuth Compounds	Phthalates
Arsenic/Arsenic Compounds	Brominated Flame Retardants	Selenium/Selenium Compounds
Beryllium/Beryllium Compounds	Nickel/Nickel Compounds	Vinyl Chloride Polymer (PVC)

If this product contains materials listed in Annex B of the EIA/EICTA/JGPSSI Material Composition Declaration Guide above the threshold level of 1000 ppm, those materials/substances are listed below.

	Description of Use	Location in Product	Material Concentration (ppm)
Brominated Flame Retardant	Flame retardant	Substrate	18600
Nickel	Plating	Substrate	2910

COMMENTS

1. The data on Level A and B materials and substances are based on analytical testing of the following package: FCBGA 567, Product Code Name KW82870MC (32mm x 32mm). Individual unit test results may vary due to differences in production and /or sensitivities of analytical testing methods. Data shown on this MDDS reflect part-level testing intended to validate Intel's RoHS compliance systems. Intel's certification of RoHS compliance at the homogenous material level is based on Supplier Declarations of Conformance.
2. This data sheet is based on the product specified and other packages are assumed to be similar.
3. Data in parts per million (ppm) can be used to estimate content for other packages assumed to be similar.
4. Material mass can be estimated by multiplying concentration (ppm) by product weight.
5. The remainder of this package consists of non-reportable metals (e.g., tin, iron, etc), epoxy resin and other non-metal materials.

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Material Declaration Data Sheet

FCBGA1
 Flip Chip Ball Grid Array1
 PinCount: 1005
 Pb Free Product: No

Product Weight (grams): 5.0
 Manufacturer: Intel Corporation
 Revision Date: 4/7/2005

Restrictions on Hazardous Substances (RoHS) Compliance

RoHS Definition

- * Quantity limit of 0.1% by mass (1000 PPM) of homogeneous material for: Lead (Pb), Mercury, Hexavalent Chromium, Polybrominated Biphenyls (PBB), Polybrominated Diphenyl Ethers (PBDE)
- * Quantity limit of 0.01% by mass (100 PPM) of homogeneous material for: Cadmium

Intel understands RoHS requires: Lead and other materials banned in RoHS Directive are either (1) below all applicable substance thresholds as defined by the EU or (2) an approved/pending exemption applies. (Note: RoHS implementation details are not fully defined and may change.)

RoHS Declaration

- * This part contains RoHS restricted substances per the definition above.

Where the part is declared to meet RoHS requirements, it has been verified to be in conformance with 2002/95/EC as we currently understand the requirements. Intel has systems in place to verify conformance with all applicable environmental requirements and to the best of our knowledge the information is true and correct.

LEVEL A MATERIALS AND SUBSTANCES

Materials from Annex A of the EIA/EICTA/JGPSSI Material Composition Declaration Guide and listed in the table below are not contained in this product in quantities above the threshold level for these materials as stated in the EIA/EICTA/JGPSSI Material Composition Declaration Guide, nor intentionally added to this product.

Asbestos	Mercury / Mercury Compounds	Polychlorinated Naphthalenes
Azo colorants	Ozone Depleting Substances	Radioactive Substances
Cadmium / Cadmium Compounds	Polybrominated Biphenyls (PBBs)	Shortchain Chlorinated Paraffins
Hexavalent Chromium	Polybrominated Diphenylethers (PBDEs)	Tributyl Tin (TBT) and Triphenyl Tin (TPT)
Hexavalent Chromium Compounds	Polychlorinated Biphenyls (PCBs)	Tributyl Tin Oxide (TBTO)

If this product contains lead (Pb) above the threshold limit of 1000 ppm, the concentration, location and use for this product are listed below.

	Description of Use	Location in Product	Material Concentration (ppm)
Lead/Lead Compounds	C4 die bump/substrate solder/BGA ball/DSC paste	FLI / SLI / DSC	2600

LEVEL B MATERIALS AND SUBSTANCES

Antimony/Antimony Compounds	Bismuth/Bismuth Compounds	Phthalates
Arsenic/Arsenic Compounds	Brominated Flame Retardants	Selenium/Selenium Compounds
Beryllium/Beryllium Compounds	Nickel/Nickel Compounds	Vinyl Chloride Polymer (PVC)

If this product contains materials listed in Annex B of the EIA/EICTA/JGPSSI Material Composition Declaration Guide above the threshold level of 1000 ppm, those materials/substances are listed below.

	Description of Use	Location in Product	Material Concentration (ppm)
Brominated Flame Retardant	Flame retardant	Substrate	27100
Nickel	Plating	Substrate	3600

COMMENTS

- The data on Level A and B materials and substances are based on analytical testing of the following package: FCBGA1 1005. Individual unit test results may vary due to differences in production and /or sensitivities of analytical testing methods. Data shown on this MDDS reflect part-level testing intended to validate Intel's RoHS compliance systems. Intel's certification of RoHS compliance at the homogenous material level is based on Supplier Declarations of Conformance.

2. This data sheet is based on the product specified and other packages are assumed to be similar.
3. Data in parts per million (ppm) can be used to estimate content for other packages assumed to be similar.
4. Material mass can be estimated by multiplying concentration (ppm) by product weight.
5. The remainder of this package consists of non-reportable metals (e.g., tin, iron, etc), epoxy resin and other non-metal materials.

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Material Declaration Data Sheet

FCBGA1
 Flip Chip Ball Grid Array1
 PinCount: 456
 Pb Free Product: No

Product Weight (grams): 12.5
 Manufacturer: Intel Corporation
 Revision Date: 5/16/2005

Restrictions on Hazardous Substances (RoHS) Compliance

RoHS Definition

- * Quantity limit of 0.1% by mass (1000 PPM) of homogeneous material for: Lead (Pb), Mercury, Hexavalent Chromium, Polybrominated Biphenyls (PBB), Polybrominated Diphenyl Ethers (PBDE)
- * Quantity limit of 0.01% by mass (100 PPM) of homogeneous material for: Cadmium

Intel understands RoHS requires: Lead and other materials banned in RoHS Directive are either (1) below all applicable substance thresholds as defined by the EU or (2) an approved/pending exemption applies. (Note: RoHS implementation details are not fully defined and may change.)

RoHS Declaration

- * This part contains RoHS restricted substances per the definition above.

Where the part is declared to meet RoHS requirements, it has been verified to be in conformance with 2002/95/EC as we currently understand the requirements. Intel has systems in place to verify conformance with all applicable environmental requirements and to the best of our knowledge the information is true and correct.

LEVEL A MATERIALS AND SUBSTANCES

Materials from Annex A of the EIA/EICTA/JGPSSI Material Composition Declaration Guide and listed in the table below are not contained in this product in quantities above the threshold level for these materials as stated in the EIA/EICTA/JGPSSI Material Composition Declaration Guide, nor intentionally added to this product.

Asbestos	Mercury / Mercury Compounds	Polychlorinated Naphthalenes
Azo colorants	Ozone Depleting Substances	Radioactive Substances
Cadmium / Cadmium Compounds	Polybrominated Biphenyls (PBBs)	Shortchain Chlorinated Paraffins
Hexavalent Chromium	Polybrominated Diphenylethers (PBDEs)	Tributyl Tin (TBT) and Triphenyl Tin (TPT)
Hexavalent Chromium Compounds	Polychlorinated Biphenyls (PCBs)	Tributyl Tin Oxide (TBTO)

If this product contains lead (Pb) above the threshold limit of 1000 ppm, the concentration, location and use for this product are listed below.

	Description of Use	Location in Product	Material Concentration (ppm)
Lead/Lead Compounds	C4 die bump/substrate solder/BGA ball/DSC paste	FLI / SLI / DSC	14000

LEVEL B MATERIALS AND SUBSTANCES

Antimony/Antimony Compounds	Bismuth/Bismuth Compounds	Phthalates
Arsenic/Arsenic Compounds	Brominated Flame Retardants	Selenium/Selenium Compounds
Beryllium/Beryllium Compounds	Nickel/Nickel Compounds	Vinyl Chloride Polymer (PVC)

If this product contains materials listed in Annex B of the EIA/EICTA/JGPSSI Material Composition Declaration Guide above the threshold level of 1000 ppm, those materials/substances are listed below.

	Description of Use	Location in Product	Material Concentration (ppm)
Brominated Flame Retardant	Flame retardant	Substrate	15600
Nickel	Plating	Substrate	15100

COMMENTS

1. The data on Level A and B materials and substances are based on analytical testing of the following package: FCBGA1 456, Product Code Name NQMXP5800 S L7N3. Individual unit test results may vary due to differences in production and /or sensitivities of analytical testing methods. Data shown on this MDDS reflect part-level testing intended to validate Intel's RoHS compliance systems. Intel's certification of RoHS compliance at the homogenous material level is based on Supplier Declarations of Conformance.

2. This data sheet is based on the product specified and other packages are assumed to be similar.
3. Data in parts per million (ppm) can be used to estimate content for other packages assumed to be similar.
4. Material mass can be estimated by multiplying concentration (ppm) by product weight.
5. The remainder of this package consists of non-reportable metals (e.g., tin, iron, etc), epoxy resin and other non-metal materials.

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Material Declaration Data Sheet

FCBGA1
 Flip Chip Ball Grid Array1
 PinCount: 567
 Pb Free Product: No

Product Weight (grams): 3.7
 Manufacturer: Intel Corporation
 Revision Date: 4/23/2006

Restrictions on Hazardous Substances (RoHS) Compliance

RoHS Definition

- * Quantity limit of 0.1% by mass (1000 PPM) of homogeneous material for: Lead (Pb), Mercury, Hexavalent Chromium, Polybrominated Biphenyls (PBB), Polybrominated Diphenyl Ethers (PBDE)
- * Quantity limit of 0.01% by mass (100 PPM) of homogeneous material for: Cadmium

Intel understands RoHS requires: Lead and other materials banned in RoHS Directive are either (1) below all applicable substance thresholds as defined by the EU or (2) an approved/pending exemption applies. (Note: RoHS implementation details are not fully defined and may change.)

RoHS Declaration

- * This part contains RoHS restricted substances per the definition above.

Where the part is declared to meet RoHS requirements, it has been verified to be in conformance with 2002/95/EC as we currently understand the requirements. Intel has systems in place to verify conformance with all applicable environmental requirements and to the best of our knowledge the information is true and correct.

LEVEL A MATERIALS AND SUBSTANCES

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Asbestos	Mercury / Mercury Compounds	Polychlorinated Naphthalenes
Azo colorants	Ozone Depleting Substances	Radioactive Substances
Cadmium / Cadmium Compounds	Polybrominated Biphenyls (PBBs)	Shortchain Chlorinated Paraffins
Hexavalent Chromium	Polybrominated Diphenylethers (PBDEs)	Tributyl Tin (TBT) and Triphenyl Tin (TPT)
Hexavalent Chromium Compounds	Polychlorinated Biphenyls (PCBs)	Tributyl Tin Oxide (TBTO)

If this product contains lead (Pb) above the threshold limit of 1000 ppm, the concentration, location and use for this product are listed below.

	Description of Use	Location in Product	Material Concentration (ppm)
Lead/Lead Compounds	C4 die bump/substrate solder/BGA ball/DSC paste	FLI / SLI / DSC	93400

LEVEL B MATERIALS AND SUBSTANCES

Antimony/Antimony Compounds	Bismuth/Bismuth Compounds	Phthalates
Arsenic/Arsenic Compounds	Brominated Flame Retardants	Selenium/Selenium Compounds
Beryllium/Beryllium Compounds	Nickel/Nickel Compounds	Vinyl Chloride Polymer (PVC)

If this product contains materials listed in Annex B of the EIA/EICTA/JGPSSI Material Composition Declaration Guide above the threshold level of 1000 ppm, those materials/substances are listed below.

	Description of Use	Location in Product	Material Concentration (ppm)
Brominated Flame Retardant	Flame retardant	Substrate	16300
Nickel	Plating	Substrate	2580

COMMENTS

1. The data on Level A and B materials and substances are based on analytical testing of the following package: FCBGA1 567, Product Code Name RG82870P2 (31mm x 31mm). Individual unit test results may vary due to differences in production and/or sensitivities of analytical testing methods. Data shown on this MDDS reflect part-level testing intended to validate Intel's RoHS compliance systems. Intel's certification of RoHS compliance at the homogenous material level is based on Supplier Declarations of Conformance.

2. This data sheet is based on the product specified and other packages are assumed to be similar.
3. Data in parts per million (ppm) can be used to estimate content for other packages assumed to be similar.
4. Material mass can be estimated by multiplying concentration (ppm) by product weight.
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Material Declaration Data Sheet

FCBGA1
 Flip Chip Ball Grid Array1
 PinCount: 567
 Pb Free Product: No

Product Weight (grams): 3.6
 Manufacturer: Intel Corporation
 Revision Date: 4/7/2005

Restrictions on Hazardous Substances (RoHS) Compliance

RoHS Definition

- * Quantity limit of 0.1% by mass (1000 PPM) of homogeneous material for: Lead (Pb), Mercury, Hexavalent Chromium, Polybrominated Biphenyls (PBB), Polybrominated Diphenyl Ethers (PBDE)
- * Quantity limit of 0.01% by mass (100 PPM) of homogeneous material for: Cadmium

Intel understands RoHS requires: Lead and other materials banned in RoHS Directive are either (1) below all applicable substance thresholds as defined by the EU or (2) an approved/pending exemption applies. (Note: RoHS implementation details are not fully defined and may change.)

RoHS Declaration

- * This part contains RoHS restricted substances per the definition above.

Where the part is declared to meet RoHS requirements, it has been verified to be in conformance with 2002/95/EC as we currently understand the requirements. Intel has systems in place to verify conformance with all applicable environmental requirements and to the best of our knowledge the information is true and correct.

LEVEL A MATERIALS AND SUBSTANCES

Materials from Annex A of the EIA/EICTA/JGPSSI Material Composition Declaration Guide and listed in the table below are not contained in this product in quantities above the threshold level for these materials as stated in the EIA/EICTA/JGPSSI Material Composition Declaration Guide, nor intentionally added to this product.

Asbestos	Mercury / Mercury Compounds	Polychlorinated Naphthalenes
Azo colorants	Ozone Depleting Substances	Radioactive Substances
Cadmium / Cadmium Compounds	Polybrominated Biphenyls (PBBs)	Shortchain Chlorinated Paraffins
Hexavalent Chromium	Polybrominated Diphenylethers (PBDEs)	Tributyl Tin (TBT) and Triphenyl Tin (TPT)
Hexavalent Chromium Compounds	Polychlorinated Biphenyls (PCBs)	Tributyl Tin Oxide (TBTO)

If this product contains lead (Pb) above the threshold limit of 1000 ppm, the concentration, location and use for this product are listed below.

	Description of Use	Location in Product	Material Concentration (ppm)
Lead/Lead Compounds	C4 die bump/substrate solder/BGA ball/DSC paste	FLI / SLI / DSC	20400

LEVEL B MATERIALS AND SUBSTANCES

Antimony/Antimony Compounds	Bismuth/Bismuth Compounds	Phthalates
Arsenic/Arsenic Compounds	Brominated Flame Retardants	Selenium/Selenium Compounds
Beryllium/Beryllium Compounds	Nickel/Nickel Compounds	Vinyl Chloride Polymer (PVC)

If this product contains materials listed in Annex B of the EIA/EICTA/JGPSSI Material Composition Declaration Guide above the threshold level of 1000 ppm, those materials/substances are listed below.

	Description of Use	Location in Product	Material Concentration (ppm)
Brominated Flame Retardant	Flame retardant	Substrate	29400
Nickel	Plating	Substrate	2370

COMMENTS

1. The data on Level A and B materials and substances are based on analytical testing of the following package: FCBGA1 593. Individual unit test results may vary due to differences in production and /or sensitivities of analytical testing methods. Data shown on this MDDS reflect part-level testing intended to validate Intel's RoHS compliance systems. Intel's certification of RoHS compliance at the homogenous material level is based on Supplier Declarations of Conformance.

2. This data sheet is based on the product specified and other packages are assumed to be similar.
3. Data in parts per million (ppm) can be used to estimate content for other packages assumed to be similar.
4. Material mass can be estimated by multiplying concentration (ppm) by product weight.
5. The remainder of this package consists of non-reportable metals (e.g., tin, iron, etc), epoxy resin and other non-metal materials.

INTEL ACCEPTS NO DUTY TO UPDATE THIS MDDS OR TO NOTIFY USERS OF THIS MDDS OF UPDATES OR CHANGES TO THIS MDDS. INTEL SHALL NOT BE LIABLE FOR ANY DAMAGES, DIRECT OR INDIRECT, CONSEQUENTIAL OR OTHERWISE, SUFFERED BY USERS OR THIRD PARTIES AS A RESULT OF THE USERS RELIANCE ON INFORMATION IN THIS MDDS THAT HAS BEEN UPDATED OR CHANGED.



Material Declaration Data Sheet

FCBGA1
 Flip Chip Ball Grid Array1
 PinCount: 593
 Pb Free Product: No

Product Weight (grams): 4.9
 Manufacturer: Intel Corporation
 Revision Date: 4/7/2005

Restrictions on Hazardous Substances (RoHS) Compliance

RoHS Definition

- * Quantity limit of 0.1% by mass (1000 PPM) of homogeneous material for: Lead (Pb), Mercury, Hexavalent Chromium, Polybrominated Biphenyls (PBB), Polybrominated Diphenyl Ethers (PBDE)
- * Quantity limit of 0.01% by mass (100 PPM) of homogeneous material for: Cadmium

Intel understands RoHS requires: Lead and other materials banned in RoHS Directive are either (1) below all applicable substance thresholds as defined by the EU or (2) an approved/pending exemption applies. (Note: RoHS implementation details are not fully defined and may change.)

RoHS Declaration

- * This part contains RoHS restricted substances per the definition above.

Where the part is declared to meet RoHS requirements, it has been verified to be in conformance with 2002/95/EC as we currently understand the requirements. Intel has systems in place to verify conformance with all applicable environmental requirements and to the best of our knowledge the information is true and correct.

LEVEL A MATERIALS AND SUBSTANCES

Materials from Annex A of the EIA/EICTA/JGPSSI Material Composition Declaration Guide and listed in the table below are not contained in this product in quantities above the threshold level for these materials as stated in the EIA/EICTA/JGPSSI Material Composition Declaration Guide, nor intentionally added to this product.

Asbestos	Mercury / Mercury Compounds	Polychlorinated Naphthalenes
Azo colorants	Ozone Depleting Substances	Radioactive Substances
Cadmium / Cadmium Compounds	Polybrominated Biphenyls (PBBs)	Shortchain Chlorinated Paraffins
Hexavalent Chromium	Polybrominated Diphenylethers (PBDEs)	Tributyl Tin (TBT) and Triphenyl Tin (TPT)
Hexavalent Chromium Compounds	Polychlorinated Biphenyls (PCBs)	Tributyl Tin Oxide (TBTO)

If this product contains lead (Pb) above the threshold limit of 1000 ppm, the concentration, location and use for this product are listed below.

	Description of Use	Location in Product	Material Concentration (ppm)
Lead/Lead Compounds	C4 die bump/substrate solder/BGA ball/DSC paste	FLI / SLI / DSC	20400

LEVEL B MATERIALS AND SUBSTANCES

Antimony/Antimony Compounds	Bismuth/Bismuth Compounds	Phthalates
Arsenic/Arsenic Compounds	Brominated Flame Retardants	Selenium/Selenium Compounds
Beryllium/Beryllium Compounds	Nickel/Nickel Compounds	Vinyl Chloride Polymer (PVC)

If this product contains materials listed in Annex B of the EIA/EICTA/JGPSSI Material Composition Declaration Guide above the threshold level of 1000 ppm, those materials/substances are listed below.

	Description of Use	Location in Product	Material Concentration (ppm)
Brominated Flame Retardant	Flame retardant	Substrate	29400
Nickel	Plating	Substrate	2370

COMMENTS

1. The data on Level A and B materials and substances are based on analytical testing of the following package: FCBGA1 593. Individual unit test results may vary due to differences in production and /or sensitivities of analytical testing methods. Data shown on this MDDS reflect part-level testing intended to validate Intel's RoHS compliance systems. Intel's certification of RoHS compliance at the homogenous material level is based on Supplier Declarations of Conformance.

2. This data sheet is based on the product specified and other packages are assumed to be similar.
3. Data in parts per million (ppm) can be used to estimate content for other packages assumed to be similar.
4. Material mass can be estimated by multiplying concentration (ppm) by product weight.
5. The remainder of this package consists of non-reportable metals (e.g., tin, iron, etc), epoxy resin and other non-metal materials.

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Material Declaration Data Sheet

FCBGA1
 Flip Chip Ball Grid Array1
 PinCount: 732
 Pb Free Product: No

Product Weight (grams): 5.6
 Manufacturer: Intel Corporation
 Revision Date: 4/7/2005

Restrictions on Hazardous Substances (RoHS) Compliance

RoHS Definition

- * Quantity limit of 0.1% by mass (1000 PPM) of homogeneous material for: Lead (Pb), Mercury, Hexavalent Chromium, Polybrominated Biphenyls (PBB), Polybrominated Diphenyl Ethers (PBDE)
- * Quantity limit of 0.01% by mass (100 PPM) of homogeneous material for: Cadmium

Intel understands RoHS requires: Lead and other materials banned in RoHS Directive are either (1) below all applicable substance thresholds as defined by the EU or (2) an approved/pending exemption applies. (Note: RoHS implementation details are not fully defined and may change.)

RoHS Declaration

- * This part contains RoHS restricted substances per the definition above.

Where the part is declared to meet RoHS requirements, it has been verified to be in conformance with 2002/95/EC as we currently understand the requirements. Intel has systems in place to verify conformance with all applicable environmental requirements and to the best of our knowledge the information is true and correct.

LEVEL A MATERIALS AND SUBSTANCES

Materials from Annex A of the EIA/EICTA/JGPSSI Material Composition Declaration Guide and listed in the table below are not contained in this product in quantities above the threshold level for these materials as stated in the EIA/EICTA/JGPSSI Material Composition Declaration Guide, nor intentionally added to this product.

Asbestos	Mercury / Mercury Compounds	Polychlorinated Naphthalenes
Azo colorants	Ozone Depleting Substances	Radioactive Substances
Cadmium / Cadmium Compounds	Polybrominated Biphenyls (PBBs)	Shortchain Chlorinated Paraffins
Hexavalent Chromium	Polybrominated Diphenylethers (PBDEs)	Tributyl Tin (TBT) and Triphenyl Tin (TPT)
Hexavalent Chromium Compounds	Polychlorinated Biphenyls (PCBs)	Tributyl Tin Oxide (TBTO)

If this product contains lead (Pb) above the threshold limit of 1000 ppm, the concentration, location and use for this product are listed below.

	Description of Use	Location in Product	Material Concentration (ppm)
Lead/Lead Compounds	C4 die bump/substrate solder/BGA ball/DSC paste	FLI / SLI / DSC	2600

LEVEL B MATERIALS AND SUBSTANCES

Antimony/Antimony Compounds	Bismuth/Bismuth Compounds	Phthalates
Arsenic/Arsenic Compounds	Brominated Flame Retardants	Selenium/Selenium Compounds
Beryllium/Beryllium Compounds	Nickel/Nickel Compounds	Vinyl Chloride Polymer (PVC)

If this product contains materials listed in Annex B of the EIA/EICTA/JGPSSI Material Composition Declaration Guide above the threshold level of 1000 ppm, those materials/substances are listed below.

	Description of Use	Location in Product	Material Concentration (ppm)
Brominated Flame Retardant	Flame retardant	Substrate	27100
Nickel	Plating	Substrate	3600

COMMENTS

1. The data on Level A and B materials and substances are based on analytical testing of the following package: FCBGA1 1005. Individual unit test results may vary due to differences in production and /or sensitivities of analytical testing methods. Data shown on this MDDS reflect part-level testing intended to validate Intel's RoHS compliance systems. Intel's certification of RoHS compliance at the homogenous material level is based on Supplier Declarations of Conformance.

2. This data sheet is based on the product specified and other packages are assumed to be similar.
3. Data in parts per million (ppm) can be used to estimate content for other packages assumed to be similar.
4. Material mass can be estimated by multiplying concentration (ppm) by product weight.
5. The remainder of this package consists of non-reportable metals (e.g., tin, iron, etc), epoxy resin and other non-metal materials.

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Material Declaration Data Sheet

FCBGA1
 Flip Chip Ball Grid Array1
 PinCount: 760
 Pb Free Product: No

Product Weight (grams): 4.6
 Manufacturer: Intel Corporation
 Revision Date: 4/7/2005

Restrictions on Hazardous Substances (RoHS) Compliance

RoHS Definition

- * Quantity limit of 0.1% by mass (1000 PPM) of homogeneous material for: Lead (Pb), Mercury, Hexavalent Chromium, Polybrominated Biphenyls (PBB), Polybrominated Diphenyl Ethers (PBDE)
- * Quantity limit of 0.01% by mass (100 PPM) of homogeneous material for: Cadmium

Intel understands RoHS requires: Lead and other materials banned in RoHS Directive are either (1) below all applicable substance thresholds as defined by the EU or (2) an approved/pending exemption applies. (Note: RoHS implementation details are not fully defined and may change.)

RoHS Declaration

- * This part contains RoHS restricted substances per the definition above.

Where the part is declared to meet RoHS requirements, it has been verified to be in conformance with 2002/95/EC as we currently understand the requirements. Intel has systems in place to verify conformance with all applicable environmental requirements and to the best of our knowledge the information is true and correct.

LEVEL A MATERIALS AND SUBSTANCES

Materials from Annex A of the EIA/EICTA/JGPSSI Material Composition Declaration Guide and listed in the table below are not contained in this product in quantities above the threshold level for these materials as stated in the EIA/EICTA/JGPSSI Material Composition Declaration Guide, nor intentionally added to this product.

Asbestos	Mercury / Mercury Compounds	Polychlorinated Naphthalenes
Azo colorants	Ozone Depleting Substances	Radioactive Substances
Cadmium / Cadmium Compounds	Polybrominated Biphenyls (PBBs)	Shortchain Chlorinated Paraffins
Hexavalent Chromium	Polybrominated Diphenylethers (PBDEs)	Tributyl Tin (TBT) and Triphenyl Tin (TPT)
Hexavalent Chromium Compounds	Polychlorinated Biphenyls (PCBs)	Tributyl Tin Oxide (TBTO)

If this product contains lead (Pb) above the threshold limit of 1000 ppm, the concentration, location and use for this product are listed below.

	Description of Use	Location in Product	Material Concentration (ppm)
Lead/Lead Compounds	C4 die bump/substrate solder/BGA ball/DSC paste	FLI / SLI / DSC	2600

LEVEL B MATERIALS AND SUBSTANCES

Antimony/Antimony Compounds	Bismuth/Bismuth Compounds	Phthalates
Arsenic/Arsenic Compounds	Brominated Flame Retardants	Selenium/Selenium Compounds
Beryllium/Beryllium Compounds	Nickel/Nickel Compounds	Vinyl Chloride Polymer (PVC)

If this product contains materials listed in Annex B of the EIA/EICTA/JGPSSI Material Composition Declaration Guide above the threshold level of 1000 ppm, those materials/substances are listed below.

	Description of Use	Location in Product	Material Concentration (ppm)
Brominated Flame Retardant	Flame retardant	Substrate	27100
Nickel	Plating	Substrate	3600

COMMENTS

1. The data on Level A and B materials and substances are based on analytical testing of the following package: FCBGA1 1005. Individual unit test results may vary due to differences in production and /or sensitivities of analytical testing methods. Data shown on this MDDS reflect part-level testing intended to validate Intel's RoHS compliance systems. Intel's certification of RoHS compliance at the homogenous material level is based on Supplier Declarations of Conformance.

2. This data sheet is based on the product specified and other packages are assumed to be similar.
3. Data in parts per million (ppm) can be used to estimate content for other packages assumed to be similar.
4. Material mass can be estimated by multiplying concentration (ppm) by product weight.
5. The remainder of this package consists of non-reportable metals (e.g., tin, iron, etc), epoxy resin and other non-metal materials.

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Material Declaration Data Sheet

FCBGA1
 Flip Chip Ball Grid Array1
 PinCount: 778
 Pb Free Product: No

Product Weight (grams): 4.8
 Manufacturer: Intel Corporation
 Revision Date: 4/7/2005

Restrictions on Hazardous Substances (RoHS) Compliance

RoHS Definition

- * Quantity limit of 0.1% by mass (1000 PPM) of homogeneous material for: Lead (Pb), Mercury, Hexavalent Chromium, Polybrominated Biphenyls (PBB), Polybrominated Diphenyl Ethers (PBDE)
- * Quantity limit of 0.01% by mass (100 PPM) of homogeneous material for: Cadmium

Intel understands RoHS requires: Lead and other materials banned in RoHS Directive are either (1) below all applicable substance thresholds as defined by the EU or (2) an approved/pending exemption applies. (Note: RoHS implementation details are not fully defined and may change.)

RoHS Declaration

- * This part contains RoHS restricted substances per the definition above.

Where the part is declared to meet RoHS requirements, it has been verified to be in conformance with 2002/95/EC as we currently understand the requirements. Intel has systems in place to verify conformance with all applicable environmental requirements and to the best of our knowledge the information is true and correct.

LEVEL A MATERIALS AND SUBSTANCES

Materials from Annex A of the EIA/EICTA/JGPSSI Material Composition Declaration Guide and listed in the table below are not contained in this product in quantities above the threshold level for these materials as stated in the EIA/EICTA/JGPSSI Material Composition Declaration Guide, nor intentionally added to this product.

Asbestos	Mercury / Mercury Compounds	Polychlorinated Naphthalenes
Azo colorants	Ozone Depleting Substances	Radioactive Substances
Cadmium / Cadmium Compounds	Polybrominated Biphenyls (PBBs)	Shortchain Chlorinated Paraffins
Hexavalent Chromium	Polybrominated Diphenylethers (PBDEs)	Tributyl Tin (TBT) and Triphenyl Tin (TPT)
Hexavalent Chromium Compounds	Polychlorinated Biphenyls (PCBs)	Tributyl Tin Oxide (TBTO)

If this product contains lead (Pb) above the threshold limit of 1000 ppm, the concentration, location and use for this product are listed below.

	Description of Use	Location in Product	Material Concentration (ppm)
Lead/Lead Compounds	C4 die bump/substrate solder/BGA ball/DSC paste	FLI / SLI / DSC	2600

LEVEL B MATERIALS AND SUBSTANCES

Antimony/Antimony Compounds	Bismuth/Bismuth Compounds	Phthalates
Arsenic/Arsenic Compounds	Brominated Flame Retardants	Selenium/Selenium Compounds
Beryllium/Beryllium Compounds	Nickel/Nickel Compounds	Vinyl Chloride Polymer (PVC)

If this product contains materials listed in Annex B of the EIA/EICTA/JGPSSI Material Composition Declaration Guide above the threshold level of 1000 ppm, those materials/substances are listed below.

	Description of Use	Location in Product	Material Concentration (ppm)
Brominated Flame Retardant	Flame retardant	Substrate	27100
Nickel	Plating	Substrate	3600

COMMENTS

1. The data on Level A and B materials and substances are based on analytical testing of the following package: FCBGA1 1005. Individual unit test results may vary due to differences in production and /or sensitivities of analytical testing methods. Data shown on this MDDS reflect part-level testing intended to validate Intel's RoHS compliance systems. Intel's certification of RoHS compliance at the homogenous material level is based on Supplier Declarations of Conformance.

2. This data sheet is based on the product specified and other packages are assumed to be similar.
3. Data in parts per million (ppm) can be used to estimate content for other packages assumed to be similar.
4. Material mass can be estimated by multiplying concentration (ppm) by product weight.
5. The remainder of this package consists of non-reportable metals (e.g., tin, iron, etc), epoxy resin and other non-metal materials.

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Material Declaration Data Sheet

FCBGA1
 Flip Chip Ball Grid Array1
 PinCount: 932
 Pb Free Product: No

Product Weight (grams): 4.8
 Manufacturer: Intel Corporation
 Revision Date: 4/7/2005

Restrictions on Hazardous Substances (RoHS) Compliance

RoHS Definition

- * Quantity limit of 0.1% by mass (1000 PPM) of homogeneous material for: Lead (Pb), Mercury, Hexavalent Chromium, Polybrominated Biphenyls (PBB), Polybrominated Diphenyl Ethers (PBDE)
- * Quantity limit of 0.01% by mass (100 PPM) of homogeneous material for: Cadmium

Intel understands RoHS requires: Lead and other materials banned in RoHS Directive are either (1) below all applicable substance thresholds as defined by the EU or (2) an approved/pending exemption applies. (Note: RoHS implementation details are not fully defined and may change.)

RoHS Declaration

- * This part contains RoHS restricted substances per the definition above.

Where the part is declared to meet RoHS requirements, it has been verified to be in conformance with 2002/95/EC as we currently understand the requirements. Intel has systems in place to verify conformance with all applicable environmental requirements and to the best of our knowledge the information is true and correct.

LEVEL A MATERIALS AND SUBSTANCES

Materials from Annex A of the EIA/EICTA/JGPSSI Material Composition Declaration Guide and listed in the table below are not contained in this product in quantities above the threshold level for these materials as stated in the EIA/EICTA/JGPSSI Material Composition Declaration Guide, nor intentionally added to this product.

Asbestos	Mercury / Mercury Compounds	Polychlorinated Naphthalenes
Azo colorants	Ozone Depleting Substances	Radioactive Substances
Cadmium / Cadmium Compounds	Polybrominated Biphenyls (PBBs)	Shortchain Chlorinated Paraffins
Hexavalent Chromium	Polybrominated Diphenylethers (PBDEs)	Tributyl Tin (TBT) and Triphenyl Tin (TPT)
Hexavalent Chromium Compounds	Polychlorinated Biphenyls (PCBs)	Tributyl Tin Oxide (TBTO)

If this product contains lead (Pb) above the threshold limit of 1000 ppm, the concentration, location and use for this product are listed below.

	Description of Use	Location in Product	Material Concentration (ppm)
Lead/Lead Compounds	C4 die bump/substrate solder/BGA ball/DSC paste	FLI / SLI / DSC	2600

LEVEL B MATERIALS AND SUBSTANCES

Antimony/Antimony Compounds	Bismuth/Bismuth Compounds	Phthalates
Arsenic/Arsenic Compounds	Brominated Flame Retardants	Selenium/Selenium Compounds
Beryllium/Beryllium Compounds	Nickel/Nickel Compounds	Vinyl Chloride Polymer (PVC)

If this product contains materials listed in Annex B of the EIA/EICTA/JGPSSI Material Composition Declaration Guide above the threshold level of 1000 ppm, those materials/substances are listed below.

	Description of Use	Location in Product	Material Concentration (ppm)
Brominated Flame Retardant	Flame retardant	Substrate	27100
Nickel	Plating	Substrate	3600

COMMENTS

1. The data on Level A and B materials and substances are based on analytical testing of the following package: FCBGA1 1005. Individual unit test results may vary due to differences in production and /or sensitivities of analytical testing methods. Data shown on this MDDS reflect part-level testing intended to validate Intel's RoHS compliance systems. Intel's certification of RoHS compliance at the homogenous material level is based on Supplier Declarations of Conformance.

2. This data sheet is based on the product specified and other packages are assumed to be similar.
3. Data in parts per million (ppm) can be used to estimate content for other packages assumed to be similar.
4. Material mass can be estimated by multiplying concentration (ppm) by product weight.
5. The remainder of this package consists of non-reportable metals (e.g., tin, iron, etc), epoxy resin and other non-metal materials.

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Material Declaration Data Sheet

FCBGA2
 Flip Chip Ball Grid Array2
 PinCount: 479
 Pb Free Product: No

Product Weight (grams): 3.8
 Manufacturer: Intel Corporation
 Revision Date: 5/1/2004

Restrictions on Hazardous Substances (RoHS) Compliance

RoHS Definition

- * Quantity limit of 0.1% by mass (1000 PPM) of homogeneous material for: Lead (Pb), Mercury, Hexavalent Chromium, Polybrominated Biphenyls (PBB), Polybrominated Diphenyl Ethers (PBDE)
- * Quantity limit of 0.01% by mass (100 PPM) of homogeneous material for: Cadmium

Intel understands RoHS requires: Lead and other materials banned in RoHS Directive are either (1) below all applicable substance thresholds as defined by the EU or (2) an approved/pending exemption applies. (Note: RoHS implementation details are not fully defined and may change.)

RoHS Declaration

- * This part contains RoHS restricted substances per the definition above.

Where the part is declared to meet RoHS requirements, it has been verified to be in conformance with 2002/95/EC as we currently understand the requirements. Intel has systems in place to verify conformance with all applicable environmental requirements and to the best of our knowledge the information is true and correct.

LEVEL A MATERIALS AND SUBSTANCES

Materials from Annex A of the EIA/EICTA/JGPSSI Material Composition Declaration Guide and listed in the table below are not contained in this product in quantities above the threshold level for these materials as stated in the EIA/EICTA/JGPSSI Material Composition Declaration Guide, nor intentionally added to this product.

Asbestos	Mercury / Mercury Compounds	Polychlorinated Naphthalenes
Azo colorants	Ozone Depleting Substances	Radioactive Substances
Cadmium / Cadmium Compounds	Polybrominated Biphenyls (PBBs)	Shortchain Chlorinated Paraffins
Hexavalent Chromium	Polybrominated Diphenylethers (PBDEs)	Tributyl Tin (TBT) and Triphenyl Tin (TPT)
Hexavalent Chromium Compounds	Polychlorinated Biphenyls (PCBs)	Tributyl Tin Oxide (TBTO)

If this product contains lead (Pb) above the threshold limit of 1000 ppm, the concentration, location and use for this product are listed below.

	Description of Use	Location in Product	Material Concentration (ppm)
Lead/Lead Compounds	C4 die bump/substrate solder/BGA ball/DSC paste	FLI / SLI / DSC	12928

LEVEL B MATERIALS AND SUBSTANCES

Antimony/Antimony Compounds	Bismuth/Bismuth Compounds	Phthalates
Arsenic/Arsenic Compounds	Brominated Flame Retardants	Selenium/Selenium Compounds
Beryllium/Beryllium Compounds	Nickel/Nickel Compounds	Vinyl Chloride Polymer (PVC)

If this product contains materials listed in Annex B of the EIA/EICTA/JGPSSI Material Composition Declaration Guide above the threshold level of 1000 ppm, those materials/substances are listed below.

	Description of Use	Location in Product	Material Concentration (ppm)
Brominated Flame Retardant	Flame retardant	Substrate	22110
Nickel	Plating	Substrate	4851

COMMENTS

- The data on Level A and B materials and substances are based on analytical testing of the following package: FCBGA2 495. Individual unit test results may vary due to differences in production and /or sensitivities of analytical testing methods. Data shown on this MDDS reflect part-level testing intended to validate Intel's RoHS compliance systems. Intel's certification of RoHS compliance at the homogenous material level is based on Supplier Declarations of Conformance.

2. This data sheet is based on the product specified and other packages are assumed to be similar.
3. Data in parts per million (ppm) can be used to estimate content for other packages assumed to be similar.
4. Material mass can be estimated by multiplying concentration (ppm) by product weight.
5. The remainder of this package consists of non-reportable metals (e.g., tin, iron, etc), epoxy resin and other non-metal materials.

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Material Declaration Data Sheet

FCBGA2
 Flip Chip Ball Grid Array2
 PinCount: 495
 Pb Free Product: No

Product Weight (grams): 4.6
 Manufacturer: Intel Corporation
 Revision Date: 5/1/2004

Restrictions on Hazardous Substances (RoHS) Compliance

RoHS Definition

- * Quantity limit of 0.1% by mass (1000 PPM) of homogeneous material for: Lead (Pb), Mercury, Hexavalent Chromium, Polybrominated Biphenyls (PBB), Polybrominated Diphenyl Ethers (PBDE)
- * Quantity limit of 0.01% by mass (100 PPM) of homogeneous material for: Cadmium

Intel understands RoHS requires: Lead and other materials banned in RoHS Directive are either (1) below all applicable substance thresholds as defined by the EU or (2) an approved/pending exemption applies. (Note: RoHS implementation details are not fully defined and may change.)

RoHS Declaration

- * This part contains RoHS restricted substances per the definition above.

Where the part is declared to meet RoHS requirements, it has been verified to be in conformance with 2002/95/EC as we currently understand the requirements. Intel has systems in place to verify conformance with all applicable environmental requirements and to the best of our knowledge the information is true and correct.

LEVEL A MATERIALS AND SUBSTANCES

Materials from Annex A of the EIA/EICTA/JGPSSI Material Composition Declaration Guide and listed in the table below are not contained in this product in quantities above the threshold level for these materials as stated in the EIA/EICTA/JGPSSI Material Composition Declaration Guide, nor intentionally added to this product.

Asbestos	Mercury / Mercury Compounds	Polychlorinated Naphthalenes
Azo colorants	Ozone Depleting Substances	Radioactive Substances
Cadmium / Cadmium Compounds	Polybrominated Biphenyls (PBBs)	Shortchain Chlorinated Paraffins
Hexavalent Chromium	Polybrominated Diphenylethers (PBDEs)	Tributyl Tin (TBT) and Triphenyl Tin (TPT)
Hexavalent Chromium Compounds	Polychlorinated Biphenyls (PCBs)	Tributyl Tin Oxide (TBTO)

If this product contains lead (Pb) above the threshold limit of 1000 ppm, the concentration, location and use for this product are listed below.

	Description of Use	Location in Product	Material Concentration (ppm)
Lead/Lead Compounds	C4 die bump/substrate solder/BGA ball/DSC paste	FLI / SLI / DSC	12928

LEVEL B MATERIALS AND SUBSTANCES

Antimony/Antimony Compounds	Bismuth/Bismuth Compounds	Phthalates
Arsenic/Arsenic Compounds	Brominated Flame Retardants	Selenium/Selenium Compounds
Beryllium/Beryllium Compounds	Nickel/Nickel Compounds	Vinyl Chloride Polymer (PVC)

If this product contains materials listed in Annex B of the EIA/EICTA/JGPSSI Material Composition Declaration Guide above the threshold level of 1000 ppm, those materials/substances are listed below.

	Description of Use	Location in Product	Material Concentration (ppm)
Brominated Flame Retardant	Flame retardant	Substrate	22110
Nickel	Plating	Substrate	4851

COMMENTS

1. The data on Level A and B materials and substances are based on analytical testing of the following package: FCBGA2 495. Individual unit test results may vary due to differences in production and /or sensitivities of analytical testing methods. Data shown on this MDDS reflect part-level testing intended to validate Intel's RoHS compliance systems. Intel's certification of RoHS compliance at the homogenous material level is based on Supplier Declarations of Conformance.

2. This data sheet is based on the product specified and other packages are assumed to be similar.
3. Data in parts per million (ppm) can be used to estimate content for other packages assumed to be similar.
4. Material mass can be estimated by multiplying concentration (ppm) by product weight.
5. The remainder of this package consists of non-reportable metals (e.g., tin, iron, etc), epoxy resin and other non-metal materials.

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Material Declaration Data Sheet

FCBGA3
 Flip Chip Ball Grid Array3
 PinCount: 1077
 Pb Free Product: No

Product Weight (grams): 8.2
 Manufacturer: Intel Corporation
 Revision Date: 6/6/2005

Restrictions on Hazardous Substances (RoHS) Compliance

RoHS Definition

- * Quantity limit of 0.1% by mass (1000 PPM) of homogeneous material for: Lead (Pb), Mercury, Hexavalent Chromium, Polybrominated Biphenyls (PBB), Polybrominated Diphenyl Ethers (PBDE)
- * Quantity limit of 0.01% by mass (100 PPM) of homogeneous material for: Cadmium

Intel understands RoHS requires: Lead and other materials banned in RoHS Directive are either (1) below all applicable substance thresholds as defined by the EU or (2) an approved/pending exemption applies. (Note: RoHS implementation details are not fully defined and may change.)

RoHS Declaration

- * This part contains RoHS restricted substances per the definition above.

Where the part is declared to meet RoHS requirements, it has been verified to be in conformance with 2002/95/EC as we currently understand the requirements. Intel has systems in place to verify conformance with all applicable environmental requirements and to the best of our knowledge the information is true and correct.

LEVEL A MATERIALS AND SUBSTANCES

Materials from Annex A of the EIA/EICTA/JGPSSI Material Composition Declaration Guide and listed in the table below are not contained in this product in quantities above the threshold level for these materials as stated in the EIA/EICTA/JGPSSI Material Composition Declaration Guide, nor intentionally added to this product.

Asbestos	Mercury / Mercury Compounds	Polychlorinated Naphthalenes
Azo colorants	Ozone Depleting Substances	Radioactive Substances
Cadmium / Cadmium Compounds	Polybrominated Biphenyls (PBBs)	Shortchain Chlorinated Paraffins
Hexavalent Chromium	Polybrominated Diphenylethers (PBDEs)	Tributyl Tin (TBT) and Triphenyl Tin (TPT)
Hexavalent Chromium Compounds	Polychlorinated Biphenyls (PCBs)	Tributyl Tin Oxide (TBTO)

If this product contains lead (Pb) above the threshold limit of 1000 ppm, the concentration, location and use for this product are listed below.

	Description of Use	Location in Product	Material Concentration (ppm)
Lead/Lead Compounds	C4 die bump/substrate solder/BGA ball/DSC paste	FLI / SLI / DSC	33200

LEVEL B MATERIALS AND SUBSTANCES

Antimony/Antimony Compounds	Bismuth/Bismuth Compounds	Phthalates
Arsenic/Arsenic Compounds	Brominated Flame Retardants	Selenium/Selenium Compounds
Beryllium/Beryllium Compounds	Nickel/Nickel Compounds	Vinyl Chloride Polymer (PVC)

If this product contains materials listed in Annex B of the EIA/EICTA/JGPSSI Material Composition Declaration Guide above the threshold level of 1000 ppm, those materials/substances are listed below.

	Description of Use	Location in Product	Material Concentration (ppm)
Brominated Flame Retardant	Flame retardant	Substrate	10700
Nickel	Plating	Substrate	1480

COMMENTS

1. The data on Level A and B materials and substances are based on analytical testing of the following package: FCBGA3 1077, Product Code Name NQE7520MC S L7XT. Individual unit test results may vary due to differences in production and /or sensitivities of analytical testing methods. Data shown on this MDDS reflect part-level testing intended to validate Intel's RoHS compliance systems. Intel's certification of RoHS compliance at the homogenous material level is based on Supplier Declarations of Conformance.

2. This data sheet is based on the product specified and other packages are assumed to be similar.
3. Data in parts per million (ppm) can be used to estimate content for other packages assumed to be similar.
4. Material mass can be estimated by multiplying concentration (ppm) by product weight.
5. The remainder of this package consists of non-reportable metals (e.g., tin, iron, etc), epoxy resin and other non-metal materials.

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Material Declaration Data Sheet

FCBGA3
 Flip Chip Ball Grid Array3
 PinCount: 1092
 Pb Free Product: No

Product Weight (grams): 5.1
 Manufacturer: Intel Corporation
 Revision Date: 11/23/2004

Restrictions on Hazardous Substances (RoHS) Compliance

RoHS Definition

- * Quantity limit of 0.1% by mass (1000 PPM) of homogeneous material for: Lead (Pb), Mercury, Hexavalent Chromium, Polybrominated Biphenyls (PBB), Polybrominated Diphenyl Ethers (PBDE)
- * Quantity limit of 0.01% by mass (100 PPM) of homogeneous material for: Cadmium

Intel understands RoHS requires: Lead and other materials banned in RoHS Directive are either (1) below all applicable substance thresholds as defined by the EU or (2) an approved/pending exemption applies. (Note: RoHS implementation details are not fully defined and may change.)

RoHS Declaration

- * This part contains RoHS restricted substances per the definition above.

Where the part is declared to meet RoHS requirements, it has been verified to be in conformance with 2002/95/EC as we currently understand the requirements. Intel has systems in place to verify conformance with all applicable environmental requirements and to the best of our knowledge the information is true and correct.

LEVEL A MATERIALS AND SUBSTANCES

Materials from Annex A of the EIA/EICTA/JGPSSI Material Composition Declaration Guide and listed in the table below are not contained in this product in quantities above the threshold level for these materials as stated in the EIA/EICTA/JGPSSI Material Composition Declaration Guide, nor intentionally added to this product.

Asbestos	Mercury / Mercury Compounds	Polychlorinated Naphthalenes
Azo colorants	Ozone Depleting Substances	Radioactive Substances
Cadmium / Cadmium Compounds	Polybrominated Biphenyls (PBBs)	Shortchain Chlorinated Paraffins
Hexavalent Chromium	Polybrominated Diphenylethers (PBDEs)	Tributyl Tin (TBT) and Triphenyl Tin (TPT)
Hexavalent Chromium Compounds	Polychlorinated Biphenyls (PCBs)	Tributyl Tin Oxide (TBTO)

If this product contains lead (Pb) above the threshold limit of 1000 ppm, the concentration, location and use for this product are listed below.

	Description of Use	Location in Product	Material Concentration (ppm)
Lead/Lead Compounds	C4 die bump/substrate solder/BGA ball/DSC paste	FLI / SLI / DSC	44300

LEVEL B MATERIALS AND SUBSTANCES

Antimony/Antimony Compounds	Bismuth/Bismuth Compounds	Phthalates
Arsenic/Arsenic Compounds	Brominated Flame Retardants	Selenium/Selenium Compounds
Beryllium/Beryllium Compounds	Nickel/Nickel Compounds	Vinyl Chloride Polymer (PVC)

If this product contains materials listed in Annex B of the EIA/EICTA/JGPSSI Material Composition Declaration Guide above the threshold level of 1000 ppm, those materials/substances are listed below.

	Description of Use	Location in Product	Material Concentration (ppm)
Brominated Flame Retardant	Flame retardant	Substrate	19900
Nickel	Plating	Substrate	2620

COMMENTS

1. The data on Level A and B materials and substances are based on analytical testing of the following package: FCBGA3 1092, Product Code Name NG88GDV. Individual unit test results may vary due to differences in production and /or sensitivities of analytical testing methods. Data shown on this MDDS reflect part-level testing intended to validate Intel's RoHS compliance systems. Intel's certification of RoHS compliance at the homogenous material level is based on Supplier Declarations of Conformance.

2. This data sheet is based on the product specified and other packages are assumed to be similar.
3. Data in parts per million (ppm) can be used to estimate content for other packages assumed to be similar.
4. Material mass can be estimated by multiplying concentration (ppm) by product weight.
5. The remainder of this package consists of non-reportable metals (e.g., tin, iron, etc), epoxy resin and other non-metal materials.

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Material Declaration Data Sheet

FCBGA3
 Flip Chip Ball Grid Array3
 PinCount: 1210
 Pb Free Product: No

Product Weight (grams): 5.0
 Manufacturer: Intel Corporation
 Revision Date: 4/7/2005

Restrictions on Hazardous Substances (RoHS) Compliance

RoHS Definition

- * Quantity limit of 0.1% by mass (1000 PPM) of homogeneous material for: Lead (Pb), Mercury, Hexavalent Chromium, Polybrominated Biphenyls (PBB), Polybrominated Diphenyl Ethers (PBDE)
- * Quantity limit of 0.01% by mass (100 PPM) of homogeneous material for: Cadmium

Intel understands RoHS requires: Lead and other materials banned in RoHS Directive are either (1) below all applicable substance thresholds as defined by the EU or (2) an approved/pending exemption applies. (Note: RoHS implementation details are not fully defined and may change.)

RoHS Declaration

- * This part contains RoHS restricted substances per the definition above.

Where the part is declared to meet RoHS requirements, it has been verified to be in conformance with 2002/95/EC as we currently understand the requirements. Intel has systems in place to verify conformance with all applicable environmental requirements and to the best of our knowledge the information is true and correct.

LEVEL A MATERIALS AND SUBSTANCES

Materials from Annex A of the EIA/EICTA/JGPSSI Material Composition Declaration Guide and listed in the table below are not contained in this product in quantities above the threshold level for these materials as stated in the EIA/EICTA/JGPSSI Material Composition Declaration Guide, nor intentionally added to this product.

Asbestos	Mercury / Mercury Compounds	Polychlorinated Naphthalenes
Azo colorants	Ozone Depleting Substances	Radioactive Substances
Cadmium / Cadmium Compounds	Polybrominated Biphenyls (PBBs)	Shortchain Chlorinated Paraffins
Hexavalent Chromium	Polybrominated Diphenylethers (PBDEs)	Tributyl Tin (TBT) and Triphenyl Tin (TPT)
Hexavalent Chromium Compounds	Polychlorinated Biphenyls (PCBs)	Tributyl Tin Oxide (TBTO)

If this product contains lead (Pb) above the threshold limit of 1000 ppm, the concentration, location and use for this product are listed below.

	Description of Use	Location in Product	Material Concentration (ppm)
Lead/Lead Compounds	C4 die bump/substrate solder/BGA ball/DSC paste	FLI / SLI / DSC	44300

LEVEL B MATERIALS AND SUBSTANCES

Antimony/Antimony Compounds	Bismuth/Bismuth Compounds	Phthalates
Arsenic/Arsenic Compounds	Brominated Flame Retardants	Selenium/Selenium Compounds
Beryllium/Beryllium Compounds	Nickel/Nickel Compounds	Vinyl Chloride Polymer (PVC)

If this product contains materials listed in Annex B of the EIA/EICTA/JGPSSI Material Composition Declaration Guide above the threshold level of 1000 ppm, those materials/substances are listed below.

	Description of Use	Location in Product	Material Concentration (ppm)
Brominated Flame Retardant	Flame retardant	Substrate	19900
Nickel	Plating	Substrate	2620

COMMENTS

- The data on Level A and B materials and substances are based on analytical testing of the following package: FCBGA3 1092, Product Code Name NG88ADWV A B BV2L7LZ1
- Individual unit test results may vary due to differences in production and /or sensitivities of analytical testing methods. Data shown on this MDDS reflect part-level testing intended to validate Intel's RoHS compliance systems. Intel's certification of RoHS compliance at the homogeneous material level is based on Supplier Declarations of Conformance.

2. This data sheet is based on the product specified and other packages are assumed to be similar.
3. Data in parts per million (ppm) can be used to estimate content for other packages assumed to be similar.
4. Material mass can be estimated by multiplying concentration (ppm) by product weight.
5. The remainder of this package consists of non-reportable metals (e.g., tin, iron, etc), epoxy resin and other non-metal materials.

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Material Declaration Data Sheet

FCBGA3
 Flip Chip Ball Grid Array3
 PinCount: 1210
 Pb Free Product: No

Product Weight (grams): 5.2
 Manufacturer: Intel Corporation
 Revision Date: 12/15/2005

Restrictions on Hazardous Substances (RoHS) Compliance

RoHS Definition

- * Quantity limit of 0.1% by mass (1000 PPM) of homogeneous material for: Lead (Pb), Mercury, Hexavalent Chromium, Polybrominated Biphenyls (PBB), Polybrominated Diphenyl Ethers (PBDE)
- * Quantity limit of 0.01% by mass (100 PPM) of homogeneous material for: Cadmium

Intel understands RoHS requires: Lead and other materials banned in RoHS Directive are either (1) below all applicable substance thresholds as defined by the EU or (2) an approved/pending exemption applies. (Note: RoHS implementation details are not fully defined and may change.)

RoHS Declaration

- * This part contains RoHS restricted substances per the definition above.

Where the part is declared to meet RoHS requirements, it has been verified to be in conformance with 2002/95/EC as we currently understand the requirements. Intel has systems in place to verify conformance with all applicable environmental requirements and to the best of our knowledge the information is true and correct.

LEVEL A MATERIALS AND SUBSTANCES

Materials from Annex A of the EIA/EICTA/JGPSSI Material Composition Declaration Guide and listed in the table below are not contained in this product in quantities above the threshold level for these materials as stated in the EIA/EICTA/JGPSSI Material Composition Declaration Guide, nor intentionally added to this product.

Asbestos	Mercury / Mercury Compounds	Polychlorinated Naphthalenes
Azo colorants	Ozone Depleting Substances	Radioactive Substances
Cadmium / Cadmium Compounds	Polybrominated Biphenyls (PBBs)	Shortchain Chlorinated Paraffins
Hexavalent Chromium	Polybrominated Diphenylethers (PBDEs)	Tributyl Tin (TBT) and Triphenyl Tin (TPT)
Hexavalent Chromium Compounds	Polychlorinated Biphenyls (PCBs)	Tributyl Tin Oxide (TBTO)

If this product contains lead (Pb) above the threshold limit of 1000 ppm, the concentration, location and use for this product are listed below.

	Description of Use	Location in Product	Material Concentration (ppm)
Lead/Lead Compounds	C4 die bump/substrate solder/BGA ball/DSC paste	FLI / SLI / DSC	44300

LEVEL B MATERIALS AND SUBSTANCES

Antimony/Antimony Compounds	Bismuth/Bismuth Compounds	Phthalates
Arsenic/Arsenic Compounds	Brominated Flame Retardants	Selenium/Selenium Compounds
Beryllium/Beryllium Compounds	Nickel/Nickel Compounds	Vinyl Chloride Polymer (PVC)

If this product contains materials listed in Annex B of the EIA/EICTA/JGPSSI Material Composition Declaration Guide above the threshold level of 1000 ppm, those materials/substances are listed below.

	Description of Use	Location in Product	Material Concentration (ppm)
Brominated Flame Retardant	Flame retardant	Substrate	19900
Nickel	Plating	Substrate	2620

COMMENTS

1. The data on Level A and B materials and substances are based on analytical testing of the following package: FCBGA3 1092, Product Code Name NG82915GW. Individual unit test results may vary due to differences in production and /or sensitivities of analytical testing methods. Data shown on this MDDS reflect part-level testing intended to validate Intel's RoHS compliance systems. Intel's certification of RoHS compliance at the homogenous material level is based on Supplier Declarations of Conformance.

2. This data sheet is based on the product specified and other packages are assumed to be similar.
3. Data in parts per million (ppm) can be used to estimate content for other packages assumed to be similar.
4. Material mass can be estimated by multiplying concentration (ppm) by product weight.
5. The remainder of this package consists of non-reportable metals (e.g., tin, iron, etc), epoxy resin and other non-metal materials.

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Material Declaration Data Sheet

FCBGA3
 Flip Chip Ball Grid Array3
 PinCount: 1210
 Pb Free Product: No

Product Weight (grams): 5.0
 Manufacturer: Intel Corporation
 Revision Date: 4/7/2005

Restrictions on Hazardous Substances (RoHS) Compliance

RoHS Definition

- * Quantity limit of 0.1% by mass (1000 PPM) of homogeneous material for: Lead (Pb), Mercury, Hexavalent Chromium, Polybrominated Biphenyls (PBB), Polybrominated Diphenyl Ethers (PBDE)
- * Quantity limit of 0.01% by mass (100 PPM) of homogeneous material for: Cadmium

Intel understands RoHS requires: Lead and other materials banned in RoHS Directive are either (1) below all applicable substance thresholds as defined by the EU or (2) an approved/pending exemption applies. (Note: RoHS implementation details are not fully defined and may change.)

RoHS Declaration

- * This part contains RoHS restricted substances per the definition above.

Where the part is declared to meet RoHS requirements, it has been verified to be in conformance with 2002/95/EC as we currently understand the requirements. Intel has systems in place to verify conformance with all applicable environmental requirements and to the best of our knowledge the information is true and correct.

LEVEL A MATERIALS AND SUBSTANCES

Materials from Annex A of the EIA/EICTA/JGPSSI Material Composition Declaration Guide and listed in the table below are not contained in this product in quantities above the threshold level for these materials as stated in the EIA/EICTA/JGPSSI Material Composition Declaration Guide, nor intentionally added to this product.

Asbestos	Mercury / Mercury Compounds	Polychlorinated Naphthalenes
Azo colorants	Ozone Depleting Substances	Radioactive Substances
Cadmium / Cadmium Compounds	Polybrominated Biphenyls (PBBs)	Shortchain Chlorinated Paraffins
Hexavalent Chromium	Polybrominated Diphenylethers (PBDEs)	Tributyl Tin (TBT) and Triphenyl Tin (TPT)
Hexavalent Chromium Compounds	Polychlorinated Biphenyls (PCBs)	Tributyl Tin Oxide (TBTO)

If this product contains lead (Pb) above the threshold limit of 1000 ppm, the concentration, location and use for this product are listed below.

	Description of Use	Location in Product	Material Concentration (ppm)
Lead/Lead Compounds	C4 die bump/substrate solder/BGA ball/DSC paste	FLI / SLI / DSC	44300

LEVEL B MATERIALS AND SUBSTANCES

Antimony/Antimony Compounds	Bismuth/Bismuth Compounds	Phthalates
Arsenic/Arsenic Compounds	Brominated Flame Retardants	Selenium/Selenium Compounds
Beryllium/Beryllium Compounds	Nickel/Nickel Compounds	Vinyl Chloride Polymer (PVC)

If this product contains materials listed in Annex B of the EIA/EICTA/JGPSSI Material Composition Declaration Guide above the threshold level of 1000 ppm, those materials/substances are listed below.

	Description of Use	Location in Product	Material Concentration (ppm)
Brominated Flame Retardant	Flame retardant	Substrate	19900
Nickel	Plating	Substrate	2620

COMMENTS

1. The data on Level A and B materials and substances are based on analytical testing of the following package: FCBGA3 1092, Product Code Name NG8CURPV. Individual unit test results may vary due to differences in production and/or sensitivities of analytical testing methods. Data shown on this MDDS reflect part-level testing intended to validate Intel's RoHS compliance systems. Intel's certification of RoHS compliance at the homogenous material level is based on Supplier Declarations of Conformance.

2. This data sheet is based on the product specified and other packages are assumed to be similar.
3. Data in parts per million (ppm) can be used to estimate content for other packages assumed to be similar.
4. Material mass can be estimated by multiplying concentration (ppm) by product weight.
5. The remainder of this package consists of non-reportable metals (e.g., tin, iron, etc), epoxy resin and other non-metal materials.

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Material Declaration Data Sheet

FCBGA3
 Flip Chip Ball Grid Array3
 PinCount: 1257
 Pb Free Product: No

Product Weight (grams): 5.3
 Manufacturer: Intel Corporation
 Revision Date: 10/7/2005

Restrictions on Hazardous Substances (RoHS) Compliance

RoHS Definition

- * Quantity limit of 0.1% by mass (1000 PPM) of homogeneous material for: Lead (Pb), Mercury, Hexavalent Chromium, Polybrominated Biphenyls (PBB), Polybrominated Diphenyl Ethers (PBDE)
- * Quantity limit of 0.01% by mass (100 PPM) of homogeneous material for: Cadmium

Intel understands RoHS requires: Lead and other materials banned in RoHS Directive are either (1) below all applicable substance thresholds as defined by the EU or (2) an approved/pending exemption applies. (Note: RoHS implementation details are not fully defined and may change.)

RoHS Declaration

- * This part contains RoHS restricted substances per the definition above.

Where the part is declared to meet RoHS requirements, it has been verified to be in conformance with 2002/95/EC as we currently understand the requirements. Intel has systems in place to verify conformance with all applicable environmental requirements and to the best of our knowledge the information is true and correct.

LEVEL A MATERIALS AND SUBSTANCES

Materials from Annex A of the EIA/EICTA/JGPSSI Material Composition Declaration Guide and listed in the table below are not contained in this product in quantities above the threshold level for these materials as stated in the EIA/EICTA/JGPSSI Material Composition Declaration Guide, nor intentionally added to this product.

Asbestos	Mercury / Mercury Compounds	Polychlorinated Naphthalenes
Azo colorants	Ozone Depleting Substances	Radioactive Substances
Cadmium / Cadmium Compounds	Polybrominated Biphenyls (PBBs)	Shortchain Chlorinated Paraffins
Hexavalent Chromium	Polybrominated Diphenylethers (PBDEs)	Tributyl Tin (TBT) and Triphenyl Tin (TPT)
Hexavalent Chromium Compounds	Polychlorinated Biphenyls (PCBs)	Tributyl Tin Oxide (TBTO)

If this product contains lead (Pb) above the threshold limit of 1000 ppm, the concentration, location and use for this product are listed below.

	Description of Use	Location in Product	Material Concentration (ppm)
Lead/Lead Compounds	C4 die bump/substrate solder/BGA ball/DSC paste	FLI / SLI / DSC	44300

LEVEL B MATERIALS AND SUBSTANCES

Antimony/Antimony Compounds	Bismuth/Bismuth Compounds	Phthalates
Arsenic/Arsenic Compounds	Brominated Flame Retardants	Selenium/Selenium Compounds
Beryllium/Beryllium Compounds	Nickel/Nickel Compounds	Vinyl Chloride Polymer (PVC)

If this product contains materials listed in Annex B of the EIA/EICTA/JGPSSI Material Composition Declaration Guide above the threshold level of 1000 ppm, those materials/substances are listed below.

	Description of Use	Location in Product	Material Concentration (ppm)
Brominated Flame Retardant	Flame retardant	Substrate	19900
Nickel	Plating	Substrate	2620

COMMENTS

1. The data on Level A and B materials and substances are based on analytical testing of the following package: FCBGA3 1092, Product Code Name NQ82915GM. Individual unit test results may vary due to differences in production and /or sensitivities of analytical testing methods. Data shown on this MDDS reflect part-level testing intended to validate Intel's RoHS compliance systems. Intel's certification of RoHS compliance at the homogenous material level is based on Supplier Declarations of Conformance.

2. This data sheet is based on the product specified and other packages are assumed to be similar.
3. Data in parts per million (ppm) can be used to estimate content for other packages assumed to be similar.
4. Material mass can be estimated by multiplying concentration (ppm) by product weight.
5. The remainder of this package consists of non-reportable metals (e.g., tin, iron, etc), epoxy resin and other non-metal materials.

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Material Declaration Data Sheet

FCBGA3
 Flip Chip Ball Grid Array3
 PinCount: 1284
 Pb Free Product: No

Product Weight (grams): 7.0
 Manufacturer: Intel Corporation
 Revision Date: 2/20/2006

Restrictions on Hazardous Substances (RoHS) Compliance

RoHS Definition

- * Quantity limit of 0.1% by mass (1000 PPM) of homogeneous material for: Lead (Pb), Mercury, Hexavalent Chromium, Polybrominated Biphenyls (PBB), Polybrominated Diphenyl Ethers (PBDE)
- * Quantity limit of 0.01% by mass (100 PPM) of homogeneous material for: Cadmium

Intel understands RoHS requires: Lead and other materials banned in RoHS Directive are either (1) below all applicable substance thresholds as defined by the EU or (2) an approved/pending exemption applies. (Note: RoHS implementation details are not fully defined and may change.)

RoHS Declaration

* The part does not contain RoHS restricted substances per the definition above except lead, which is used under the following exemption: Lead in solders to complete a viable electrical connection between semiconductor die and carrier within integrated circuit Flip Chip packages.

Where the part is declared to meet RoHS requirements, it has been verified to be in conformance with 2002/95/EC as we currently understand the requirements. Intel has systems in place to verify conformance with all applicable environmental requirements and to the best of our knowledge the information is true and correct.

LEVEL A MATERIALS AND SUBSTANCES

Materials from Annex A of the EIA/EICTA/JGPSSI Material Composition Declaration Guide and listed in the table below are not contained in this product in quantities above the threshold level for these materials as stated in the EIA/EICTA/JGPSSI Material Composition Declaration Guide, nor intentionally added to this product.

Asbestos	Mercury / Mercury Compounds	Polychlorinated Naphthalenes
Azo colorants	Ozone Depleting Substances	Radioactive Substances
Cadmium / Cadmium Compounds	Polybrominated Biphenyls (PBBs)	Shortchain Chlorinated Paraffins
Hexavalent Chromium	Polybrominated Diphenylethers (PBDEs)	Tributyl Tin (TBT) and Triphenyl Tin (TPT)
Hexavalent Chromium Compounds	Polychlorinated Biphenyls (PCBs)	Tributyl Tin Oxide (TBTO)

If this product contains lead (Pb) above the threshold limit of 1000 ppm, the concentration, location and use for this product are listed below.

	Description of Use	Location in Product	Material Concentration (ppm)
Lead/Lead Compounds	C4 die bump/substrate solder/BGA ball/DSC paste	FLI / SLI / DSC	61800

LEVEL B MATERIALS AND SUBSTANCES

Antimony/Antimony Compounds	Bismuth/Bismuth Compounds	Phthalates
Arsenic/Arsenic Compounds	Brominated Flame Retardants	Selenium/Selenium Compounds
Beryllium/Beryllium Compounds	Nickel/Nickel Compounds	Vinyl Chloride Polymer (PVC)

If this product contains materials listed in Annex B of the EIA/EICTA/JGPSSI Material Composition Declaration Guide above the threshold level of 1000 ppm, those materials/substances are listed below.

	Description of Use	Location in Product	Material Concentration (ppm)
Brominated Flame Retardant	Flame retardant	Substrate	15900
Nickel	Plating	Substrate	3660

COMMENTS

1. The data on Level A and B materials and substances are based on analytical testing of the following package: FCBGA3 1284, Product Code Name NG8ES2EVAA. Individual unit test results may vary due to differences in production and /or sensitivities of analytical testing methods. Data shown on this MDDS reflect part-level testing intended to validate Intel's RoHS compliance systems. Intel's certification of RoHS compliance at the homogenous material level is based on Supplier Declarations of Conformance.
2. This data sheet is based on the product specified and other packages are assumed to be similar.
3. Data in parts per million (ppm) can be used to estimate content for other packages assumed to be similar.
4. Material mass can be estimated by multiplying concentration (ppm) by product weight.
5. The remainder of this package consists of non-reportable metals (e.g., tin, iron, etc), epoxy resin and other non-metal materials.

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Material Declaration Data Sheet

FCBGA3
 Flip Chip Ball Grid Array3
 PinCount: 567
 Pb Free Product: No

Product Weight (grams): 4.2
 Manufacturer: Intel Corporation
 Revision Date: 4/27/2006

Restrictions on Hazardous Substances (RoHS) Compliance

RoHS Definition

- * Quantity limit of 0.1% by mass (1000 PPM) of homogeneous material for: Lead (Pb), Mercury, Hexavalent Chromium, Polybrominated Biphenyls (PBB), Polybrominated Diphenyl Ethers (PBDE)
- * Quantity limit of 0.01% by mass (100 PPM) of homogeneous material for: Cadmium

Intel understands RoHS requires: Lead and other materials banned in RoHS Directive are either (1) below all applicable substance thresholds as defined by the EU or (2) an approved/pending exemption applies. (Note: RoHS implementation details are not fully defined and may change.)

RoHS Declaration

* The part does not contain RoHS restricted substances per the definition above except lead, which is used under the following exemption: Lead in solders for servers, storage and storage array systems, network infrastructure equipment for switching, signaling, transmission as well as network management for telecommunications. The applicability of this exemption depends on use of the part in one of the listed exempt applications.

Where the part is declared to meet RoHS requirements, it has been verified to be in conformance with 2002/95/EC as we currently understand the requirements. Intel has systems in place to verify conformance with all applicable environmental requirements and to the best of our knowledge the information is true and correct.

LEVEL A MATERIALS AND SUBSTANCES

Materials from Annex A of the EIA/EICTA/JGPSSI Material Composition Declaration Guide and listed in the table below are not contained in this product in quantities above the threshold level for these materials as stated in the EIA/EICTA/JGPSSI Material Composition Declaration Guide, nor intentionally added to this product.

Asbestos	Mercury / Mercury Compounds	Polychlorinated Naphthalenes
Azo colorants	Ozone Depleting Substances	Radioactive Substances
Cadmium / Cadmium Compounds	Polybrominated Biphenyls (PBBs)	Shortchain Chlorinated Paraffins
Hexavalent Chromium	Polybrominated Diphenylethers (PBDEs)	Tributyl Tin (TBT) and Triphenyl Tin (TPT)
Hexavalent Chromium Compounds	Polychlorinated Biphenyls (PCBs)	Tributyl Tin Oxide (TBTO)

If this product contains lead (Pb) above the threshold limit of 1000 ppm, the concentration, location and use for this product are listed below.

	Description of Use	Location in Product	Material Concentration (ppm)
Lead/Lead Compounds	C4 die bump/substrate solder/BGA ball/DSC paste	FLI / SLI / DSC	14000

LEVEL B MATERIALS AND SUBSTANCES

Antimony/Antimony Compounds	Bismuth/Bismuth Compounds	Phthalates
Arsenic/Arsenic Compounds	Brominated Flame Retardants	Selenium/Selenium Compounds
Beryllium/Beryllium Compounds	Nickel/Nickel Compounds	Vinyl Chloride Polymer (PVC)

If this product contains materials listed in Annex B of the EIA/EICTA/JGPSSI Material Composition Declaration Guide above the threshold level of 1000 ppm, those materials/substances are listed below.

	Description of Use	Location in Product	Material Concentration (ppm)
Brominated Flame Retardant	Flame retardant	Substrate	14000
Nickel	Plating	Substrate	9270

COMMENTS

1. The data on Level A and B materials and substances are based on analytical testing of the following package: FCBGA3 567, Product Code Name NQ8000PH (31mm x 31mm). Individual unit test results may vary due to differences in production and /or sensitivities of analytical testing methods. Data shown on this MDDS reflect part-level testing intended to validate Intel's RoHS compliance systems. Intel's certification of RoHS compliance at the homogenous material level is based on Supplier Declarations of Conformance.

2. This data sheet is based on the product specified and other packages are assumed to be similar.

3. Data in parts per million (ppm) can be used to estimate content for other packages assumed to be similar.

4. Material mass can be estimated by multiplying concentration (ppm) by product weight.

5. The remainder of this package consists of non-reportable metals (e.g., tin, iron, etc), epoxy resin and other non-metal materials.

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Material Declaration Data Sheet

FCBGA3
 Flip Chip Ball Grid Array3
 PinCount: 567
 Pb Free Product: Yes-Second Level Interconnect

Product Weight (grams): 4.1
 Manufacturer: Intel Corporation
 Revision Date: 4/30/2006

Restrictions on Hazardous Substances (RoHS) Compliance

RoHS Definition

- * Quantity limit of 0.1% by mass (1000 PPM) of homogeneous material for: Lead (Pb), Mercury, Hexavalent Chromium, Polybrominated Biphenyls (PBB), Polybrominated Diphenyl Ethers (PBDE)
- * Quantity limit of 0.01% by mass (100 PPM) of homogeneous material for: Cadmium

Intel understands RoHS requires: Lead and other materials banned in RoHS Directive are either (1) below all applicable substance thresholds as defined by the EU or (2) an approved/pending exemption applies. (Note: RoHS implementation details are not fully defined and may change.)

RoHS Declaration

* The part does not contain RoHS restricted substances per the definition above except lead, which is used under the following exemption: Lead in solders to complete a viable electrical connection between semiconductor die and carrier within integrated circuit Flip Chip packages.

Where the part is declared to meet RoHS requirements, it has been verified to be in conformance with 2002/95/EC as we currently understand the requirements. Intel has systems in place to verify conformance with all applicable environmental requirements and to the best of our knowledge the information is true and correct.

LEVEL A MATERIALS AND SUBSTANCES

Materials from Annex A of the EIA/EICTA/JGPSSI Material Composition Declaration Guide and listed in the table below are not contained in this product in quantities above the threshold level for these materials as stated in the EIA/EICTA/JGPSSI Material Composition Declaration Guide, nor intentionally added to this product.

Asbestos	Mercury / Mercury Compounds	Polychlorinated Naphthalenes
Azo colorants	Ozone Depleting Substances	Radioactive Substances
Cadmium / Cadmium Compounds	Polybrominated Biphenyls (PBBs)	Shortchain Chlorinated Paraffins
Hexavalent Chromium	Polybrominated Diphenylethers (PBDEs)	Tributyl Tin (TBT) and Triphenyl Tin (TPT)
Hexavalent Chromium Compounds	Polychlorinated Biphenyls (PCBs)	Tributyl Tin Oxide (TBTO)

If this product contains lead (Pb) above the threshold limit of 1000 ppm, the concentration, location and use for this product are listed below.

	Description of Use	Location in Product	Material Concentration (ppm)
Lead/Lead Compounds			

LEVEL B MATERIALS AND SUBSTANCES

Antimony/Antimony Compounds	Bismuth/Bismuth Compounds	Phthalates
Arsenic/Arsenic Compounds	Brominated Flame Retardants	Selenium/Selenium Compounds
Beryllium/Beryllium Compounds	Nickel/Nickel Compounds	Vinyl Chloride Polymer (PVC)

If this product contains materials listed in Annex B of the EIA/EICTA/JGPSSI Material Composition Declaration Guide above the threshold level of 1000 ppm, those materials/substances are listed below.

	Description of Use	Location in Product	Material Concentration (ppm)
Brominated Flame Retardant	Flame retardant	Substrate	21600
Nickel	Plating	Substrate	1510

COMMENTS

1. The data on Level A and B materials and substances are based on analytical testing of the following package: FCBGA3 567, Product Code Name QG41210 (31mm x 31mm). Individual unit test results may vary due to differences in production and /or sensitivities of analytical testing methods. Data shown on this MDDS reflect part-level testing intended to validate Intel's RoHS compliance systems. Intel's certification of RoHS compliance at the homogenous material level is based on Supplier Declarations of Conformance.

2. This data sheet is based on the product specified and other packages are assumed to be similar.

3. Data in parts per million (ppm) can be used to estimate content for other packages assumed to be similar.

4. Material mass can be estimated by multiplying concentration (ppm) by product weight.

5. The remainder of this package consists of non-reportable metals (e.g., tin, iron, etc), epoxy resin and other non-metal materials.

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Material Declaration Data Sheet

FCBGA3
 Flip Chip Ball Grid Array3
 PinCount: 829
 Pb Free Product: No

Product Weight (grams): 6.6
 Manufacturer: Intel Corporation
 Revision Date: 8/3/2005

Restrictions on Hazardous Substances (RoHS) Compliance

RoHS Definition

- * Quantity limit of 0.1% by mass (1000 PPM) of homogeneous material for: Lead (Pb), Mercury, Hexavalent Chromium, Polybrominated Biphenyls (PBB), Polybrominated Diphenyl Ethers (PBDE)
- * Quantity limit of 0.01% by mass (100 PPM) of homogeneous material for: Cadmium

Intel understands RoHS requires: Lead and other materials banned in RoHS Directive are either (1) below all applicable substance thresholds as defined by the EU or (2) an approved/pending exemption applies. (Note: RoHS implementation details are not fully defined and may change.)

RoHS Declaration

- * This part contains RoHS restricted substances per the definition above.

Where the part is declared to meet RoHS requirements, it has been verified to be in conformance with 2002/95/EC as we currently understand the requirements. Intel has systems in place to verify conformance with all applicable environmental requirements and to the best of our knowledge the information is true and correct.

LEVEL A MATERIALS AND SUBSTANCES

Materials from Annex A of the EIA/EICTA/JGPSSI Material Composition Declaration Guide and listed in the table below are not contained in this product in quantities above the threshold level for these materials as stated in the EIA/EICTA/JGPSSI Material Composition Declaration Guide, nor intentionally added to this product.

Asbestos	Mercury / Mercury Compounds	Polychlorinated Naphthalenes
Azo colorants	Ozone Depleting Substances	Radioactive Substances
Cadmium / Cadmium Compounds	Polybrominated Biphenyls (PBBs)	Shortchain Chlorinated Paraffins
Hexavalent Chromium	Polybrominated Diphenylethers (PBDEs)	Tributyl Tin (TBT) and Triphenyl Tin (TPT)
Hexavalent Chromium Compounds	Polychlorinated Biphenyls (PCBs)	Tributyl Tin Oxide (TBTO)

If this product contains lead (Pb) above the threshold limit of 1000 ppm, the concentration, location and use for this product are listed below.

	Description of Use	Location in Product	Material Concentration (ppm)
Lead/Lead Compounds	C4 die bump/substrate solder/BGA ball/DSC paste	FLI / SLI / DSC	56800

LEVEL B MATERIALS AND SUBSTANCES

Antimony/Antimony Compounds	Bismuth/Bismuth Compounds	Phthalates
Arsenic/Arsenic Compounds	Brominated Flame Retardants	Selenium/Selenium Compounds
Beryllium/Beryllium Compounds	Nickel/Nickel Compounds	Vinyl Chloride Polymer (PVC)

If this product contains materials listed in Annex B of the EIA/EICTA/JGPSSI Material Composition Declaration Guide above the threshold level of 1000 ppm, those materials/substances are listed below.

	Description of Use	Location in Product	Material Concentration (ppm)
Brominated Flame Retardant	Flame retardant	Substrate	11500
Nickel	Plating	Substrate	2610

COMMENTS

1. The data on Level A and B materials and substances are based on analytical testing of the following package: FCBGA3 829, Product Code Name NQ80331M500 S L82R. Individual unit test results may vary due to differences in production and /or sensitivities of analytical testing methods. Data shown on this MDDS reflect part-level testing intended to validate Intel's RoHS compliance systems. Intel's certification of RoHS compliance at the homogenous material level is based on Supplier Declarations of Conformance.

2. This data sheet is based on the product specified and other packages are assumed to be similar.
3. Data in parts per million (ppm) can be used to estimate content for other packages assumed to be similar.
4. Material mass can be estimated by multiplying concentration (ppm) by product weight.
5. The remainder of this package consists of non-reportable metals (e.g., tin, iron, etc), epoxy resin and other non-metal materials.

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Material Declaration Data Sheet

FCBGA3
 Flip Chip Ball Grid Array3
 PinCount: 829
 Pb Free Product: No

Product Weight (grams): 6.6
 Manufacturer: Intel Corporation
 Revision Date: 8/3/2005

Restrictions on Hazardous Substances (RoHS) Compliance

RoHS Definition

- * Quantity limit of 0.1% by mass (1000 PPM) of homogeneous material for: Lead (Pb), Mercury, Hexavalent Chromium, Polybrominated Biphenyls (PBB), Polybrominated Diphenyl Ethers (PBDE)
- * Quantity limit of 0.01% by mass (100 PPM) of homogeneous material for: Cadmium

Intel understands RoHS requires: Lead and other materials banned in RoHS Directive are either (1) below all applicable substance thresholds as defined by the EU or (2) an approved/pending exemption applies. (Note: RoHS implementation details are not fully defined and may change.)

RoHS Declaration

- * This part contains RoHS restricted substances per the definition above.

Where the part is declared to meet RoHS requirements, it has been verified to be in conformance with 2002/95/EC as we currently understand the requirements. Intel has systems in place to verify conformance with all applicable environmental requirements and to the best of our knowledge the information is true and correct.

LEVEL A MATERIALS AND SUBSTANCES

Materials from Annex A of the EIA/EICTA/JGPSSI Material Composition Declaration Guide and listed in the table below are not contained in this product in quantities above the threshold level for these materials as stated in the EIA/EICTA/JGPSSI Material Composition Declaration Guide, nor intentionally added to this product.

Asbestos	Mercury / Mercury Compounds	Polychlorinated Naphthalenes
Azo colorants	Ozone Depleting Substances	Radioactive Substances
Cadmium / Cadmium Compounds	Polybrominated Biphenyls (PBBs)	Shortchain Chlorinated Paraffins
Hexavalent Chromium	Polybrominated Diphenylethers (PBDEs)	Tributyl Tin (TBT) and Triphenyl Tin (TPT)
Hexavalent Chromium Compounds	Polychlorinated Biphenyls (PCBs)	Tributyl Tin Oxide (TBTO)

If this product contains lead (Pb) above the threshold limit of 1000 ppm, the concentration, location and use for this product are listed below.

	Description of Use	Location in Product	Material Concentration (ppm)
Lead/Lead Compounds	C4 die bump/substrate solder/BGA ball/DSC paste	FLI / SLI / DSC	56800

LEVEL B MATERIALS AND SUBSTANCES

Antimony/Antimony Compounds	Bismuth/Bismuth Compounds	Phthalates
Arsenic/Arsenic Compounds	Brominated Flame Retardants	Selenium/Selenium Compounds
Beryllium/Beryllium Compounds	Nickel/Nickel Compounds	Vinyl Chloride Polymer (PVC)

If this product contains materials listed in Annex B of the EIA/EICTA/JGPSSI Material Composition Declaration Guide above the threshold level of 1000 ppm, those materials/substances are listed below.

	Description of Use	Location in Product	Material Concentration (ppm)
Brominated Flame Retardant	Flame retardant	Substrate	11500
Nickel	Plating	Substrate	2610

COMMENTS

1. The data on Level A and B materials and substances are based on analytical testing of the following package: FCBGA3 829, Product Code Name NQ80332M500 S L7NQ. Individual unit test results may vary due to differences in production and /or sensitivities of analytical testing methods. Data shown on this MDDS reflect part-level testing intended to validate Intel's RoHS compliance systems. Intel's certification of RoHS compliance at the homogenous material level is based on Supplier Declarations of Conformance.

2. This data sheet is based on the product specified and other packages are assumed to be similar.
3. Data in parts per million (ppm) can be used to estimate content for other packages assumed to be similar.
4. Material mass can be estimated by multiplying concentration (ppm) by product weight.
5. The remainder of this package consists of non-reportable metals (e.g., tin, iron, etc), epoxy resin and other non-metal materials.

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Material Declaration Data Sheet

FCBGA3
 Flip Chip Ball Grid Array3
 PinCount: 840
 Pb Free Product: No

Product Weight (grams): 5.0
 Manufacturer: Intel Corporation
 Revision Date: 10/24/2005

Restrictions on Hazardous Substances (RoHS) Compliance

RoHS Definition

- * Quantity limit of 0.1% by mass (1000 PPM) of homogeneous material for: Lead (Pb), Mercury, Hexavalent Chromium, Polybrominated Biphenyls (PBB), Polybrominated Diphenyl Ethers (PBDE)
- * Quantity limit of 0.01% by mass (100 PPM) of homogeneous material for: Cadmium

Intel understands RoHS requires: Lead and other materials banned in RoHS Directive are either (1) below all applicable substance thresholds as defined by the EU or (2) an approved/pending exemption applies. (Note: RoHS implementation details are not fully defined and may change.)

RoHS Declaration

- * This part contains RoHS restricted substances per the definition above.

Where the part is declared to meet RoHS requirements, it has been verified to be in conformance with 2002/95/EC as we currently understand the requirements. Intel has systems in place to verify conformance with all applicable environmental requirements and to the best of our knowledge the information is true and correct.

LEVEL A MATERIALS AND SUBSTANCES

Materials from Annex A of the EIA/EICTA/JGPSSI Material Composition Declaration Guide and listed in the table below are not contained in this product in quantities above the threshold level for these materials as stated in the EIA/EICTA/JGPSSI Material Composition Declaration Guide, nor intentionally added to this product.

Asbestos	Mercury / Mercury Compounds	Polychlorinated Naphthalenes
Azo colorants	Ozone Depleting Substances	Radioactive Substances
Cadmium / Cadmium Compounds	Polybrominated Biphenyls (PBBs)	Shortchain Chlorinated Paraffins
Hexavalent Chromium	Polybrominated Diphenylethers (PBDEs)	Tributyl Tin (TBT) and Triphenyl Tin (TPT)
Hexavalent Chromium Compounds	Polychlorinated Biphenyls (PCBs)	Tributyl Tin Oxide (TBTO)

If this product contains lead (Pb) above the threshold limit of 1000 ppm, the concentration, location and use for this product are listed below.

	Description of Use	Location in Product	Material Concentration (ppm)
Lead/Lead Compounds	C4 die bump/substrate solder/BGA ball/DSC paste	FLI / SLI / DSC	44300

LEVEL B MATERIALS AND SUBSTANCES

Antimony/Antimony Compounds	Bismuth/Bismuth Compounds	Phthalates
Arsenic/Arsenic Compounds	Brominated Flame Retardants	Selenium/Selenium Compounds
Beryllium/Beryllium Compounds	Nickel/Nickel Compounds	Vinyl Chloride Polymer (PVC)

If this product contains materials listed in Annex B of the EIA/EICTA/JGPSSI Material Composition Declaration Guide above the threshold level of 1000 ppm, those materials/substances are listed below.

	Description of Use	Location in Product	Material Concentration (ppm)
Brominated Flame Retardant	Flame retardant	Substrate	19900
Nickel	Plating	Substrate	2620

COMMENTS

1. The data on Level A and B materials and substances are based on analytical testing of the following package: FCBGA3 1092, Product Code Name NG82915GMS. Individual unit test results may vary due to differences in production and/or sensitivities of analytical testing methods. Data shown on this MDDS reflect part-level testing intended to validate Intel's RoHS compliance systems. Intel's certification of RoHS compliance at the homogenous material level is based on Supplier Declarations of Conformance.

2. This data sheet is based on the product specified and other packages are assumed to be similar.
3. Data in parts per million (ppm) can be used to estimate content for other packages assumed to be similar.
4. Material mass can be estimated by multiplying concentration (ppm) by product weight.
5. The remainder of this package consists of non-reportable metals (e.g., tin, iron, etc), epoxy resin and other non-metal materials.

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Material Declaration Data Sheet

FCBGA4
 Flip Chip Ball Grid Array4
 PinCount: 479
 Pb Free Product: No

Product Weight (grams): 4.5
 Manufacturer: Intel Corporation
 Revision Date: 4/19/2006

Restrictions on Hazardous Substances (RoHS) Compliance

RoHS Definition

- * Quantity limit of 0.1% by mass (1000 PPM) of homogeneous material for: Lead (Pb), Mercury, Hexavalent Chromium, Polybrominated Biphenyls (PBB), Polybrominated Diphenyl Ethers (PBDE)
- * Quantity limit of 0.01% by mass (100 PPM) of homogeneous material for: Cadmium

Intel understands RoHS requires: Lead and other materials banned in RoHS Directive are either (1) below all applicable substance thresholds as defined by the EU or (2) an approved/pending exemption applies. (Note: RoHS implementation details are not fully defined and may change.)

RoHS Declaration

- * This part contains RoHS restricted substances per the definition above.

Where the part is declared to meet RoHS requirements, it has been verified to be in conformance with 2002/95/EC as we currently understand the requirements. Intel has systems in place to verify conformance with all applicable environmental requirements and to the best of our knowledge the information is true and correct.

LEVEL A MATERIALS AND SUBSTANCES

Materials from Annex A of the EIA/EICTA/JGPSSI Material Composition Declaration Guide and listed in the table below are not contained in this product in quantities above the threshold level for these materials as stated in the EIA/EICTA/JGPSSI Material Composition Declaration Guide, nor intentionally added to this product.

Asbestos	Mercury / Mercury Compounds	Polychlorinated Naphthalenes
Azo colorants	Ozone Depleting Substances	Radioactive Substances
Cadmium / Cadmium Compounds	Polybrominated Biphenyls (PBBs)	Shortchain Chlorinated Paraffins
Hexavalent Chromium	Polybrominated Diphenylethers (PBDEs)	Tributyl Tin (TBT) and Triphenyl Tin (TPT)
Hexavalent Chromium Compounds	Polychlorinated Biphenyls (PCBs)	Tributyl Tin Oxide (TBTO)

If this product contains lead (Pb) above the threshold limit of 1000 ppm, the concentration, location and use for this product are listed below.

	Description of Use	Location in Product	Material Concentration (ppm)
Lead/Lead Compounds	C4 die bump/substrate solder/BGA ball/DSC paste	FLI / SLI / DSC	48700

LEVEL B MATERIALS AND SUBSTANCES

Antimony/Antimony Compounds	Bismuth/Bismuth Compounds	Phthalates
Arsenic/Arsenic Compounds	Brominated Flame Retardants	Selenium/Selenium Compounds
Beryllium/Beryllium Compounds	Nickel/Nickel Compounds	Vinyl Chloride Polymer (PVC)

If this product contains materials listed in Annex B of the EIA/EICTA/JGPSSI Material Composition Declaration Guide above the threshold level of 1000 ppm, those materials/substances are listed below.

	Description of Use	Location in Product	Material Concentration (ppm)
Brominated Flame Retardant	Flame retardant	Substrate	76200
Nickel	Plating	Substrate	2030

COMMENTS

1. The data on Level A and B materials and substances are based on analytical testing of the following package: FCBGA4 479, Product Code Name RJ80536LC0132M. Individual unit test results may vary due to differences in production and /or sensitivities of analytical testing methods. Data shown on this MDDS reflect part-level testing intended to validate Intel's RoHS compliance systems. Intel's certification of RoHS compliance at the homogenous material level is based on Supplier Declarations of Conformance.

2. This data sheet is based on the product specified and other packages are assumed to be similar.
3. Data in parts per million (ppm) can be used to estimate content for other packages assumed to be similar.
4. Material mass can be estimated by multiplying concentration (ppm) by product weight.
5. The remainder of this package consists of non-reportable metals (e.g., tin, iron, etc), epoxy resin and other non-metal materials.

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Material Declaration Data Sheet

FCBGA5
 Flip Chip Ball Grid Array5
 PinCount: 1752
 Pb Free Product: No

Product Weight (grams): 29.1
 Manufacturer: Intel Corporation
 Revision Date: 12/7/2005

Restrictions on Hazardous Substances (RoHS) Compliance

RoHS Definition

- * Quantity limit of 0.1% by mass (1000 PPM) of homogeneous material for: Lead (Pb), Mercury, Hexavalent Chromium, Polybrominated Biphenyls (PBB), Polybrominated Diphenyl Ethers (PBDE)
- * Quantity limit of 0.01% by mass (100 PPM) of homogeneous material for: Cadmium

Intel understands RoHS requires: Lead and other materials banned in RoHS Directive are either (1) below all applicable substance thresholds as defined by the EU or (2) an approved/pending exemption applies. (Note: RoHS implementation details are not fully defined and may change.)

RoHS Declaration

- * This part contains RoHS restricted substances per the definition above.

Where the part is declared to meet RoHS requirements, it has been verified to be in conformance with 2002/95/EC as we currently understand the requirements. Intel has systems in place to verify conformance with all applicable environmental requirements and to the best of our knowledge the information is true and correct.

LEVEL A MATERIALS AND SUBSTANCES

Materials from Annex A of the EIA/EICTA/JGPSSI Material Composition Declaration Guide and listed in the table below are not contained in this product in quantities above the threshold level for these materials as stated in the EIA/EICTA/JGPSSI Material Composition Declaration Guide, nor intentionally added to this product.

Asbestos	Mercury / Mercury Compounds	Polychlorinated Naphthalenes
Azo colorants	Ozone Depleting Substances	Radioactive Substances
Cadmium / Cadmium Compounds	Polybrominated Biphenyls (PBBs)	Shortchain Chlorinated Paraffins
Hexavalent Chromium	Polybrominated Diphenylethers (PBDEs)	Tributyl Tin (TBT) and Triphenyl Tin (TPT)
Hexavalent Chromium Compounds	Polychlorinated Biphenyls (PCBs)	Tributyl Tin Oxide (TBTO)

If this product contains lead (Pb) above the threshold limit of 1000 ppm, the concentration, location and use for this product are listed below.

	Description of Use	Location in Product	Material Concentration (ppm)
Lead/Lead Compounds	C4 die bump/substrate solder/BGA ball/DSC paste	FLI / SLI / DSC	16100

LEVEL B MATERIALS AND SUBSTANCES

Antimony/Antimony Compounds	Bismuth/Bismuth Compounds	Phthalates
Arsenic/Arsenic Compounds	Brominated Flame Retardants	Selenium/Selenium Compounds
Beryllium/Beryllium Compounds	Nickel/Nickel Compounds	Vinyl Chloride Polymer (PVC)

If this product contains materials listed in Annex B of the EIA/EICTA/JGPSSI Material Composition Declaration Guide above the threshold level of 1000 ppm, those materials/substances are listed below.

	Description of Use	Location in Product	Material Concentration (ppm)
Brominated Flame Retardant	Flame retardant	Substrate	11600
Nickel	Plating	Substrate	4910

COMMENTS

1. The data on Level A and B materials and substances are based on analytical testing of the following package: FCBGA5 1752, Product Code Name HP69MAOVA. Individual unit test results may vary due to differences in production and /or sensitivities of analytical testing methods. Data shown on this MDDS reflect part-level testing intended to validate Intel's RoHS compliance systems. Intel's certification of RoHS compliance at the homogenous material level is based on Supplier Declarations of Conformance.

2. This data sheet is based on the product specified and other packages are assumed to be similar.
3. Data in parts per million (ppm) can be used to estimate content for other packages assumed to be similar.
4. Material mass can be estimated by multiplying concentration (ppm) by product weight.
5. The remainder of this package consists of non-reportable metals (e.g., tin, iron, etc), epoxy resin and other non-metal materials.

INTEL ACCEPTS NO DUTY TO UPDATE THIS MDDS OR TO NOTIFY USERS OF THIS MDDS OF UPDATES OR CHANGES TO THIS MDDS. INTEL SHALL NOT BE LIABLE FOR ANY DAMAGES, DIRECT OR INDIRECT, CONSEQUENTIAL OR OTHERWISE, SUFFERED BY USERS OR THIRD PARTIES AS A RESULT OF THE USERS RELIANCE ON INFORMATION IN THIS MDDS THAT HAS BEEN UPDATED OR CHANGED.



Material Declaration Data Sheet

FCBGA1
 Flip Chip Ball Grid Array1
 PinCount: 1005
 Pb Free Product: Yes-Second Level Interconnect

Product Weight (grams): 7.6
 Manufacturer: Intel Corporation
 Revision Date: 4/23/2006

Restrictions on Hazardous Substances (RoHS) Compliance

RoHS Definition

- * Quantity limit of 0.1% by mass (1000 PPM) of homogeneous material for: Lead (Pb), Mercury, Hexavalent Chromium, Polybrominated Biphenyls (PBB), Polybrominated Diphenyl Ethers (PBDE)
- * Quantity limit of 0.01% by mass (100 PPM) of homogeneous material for: Cadmium

Intel understands RoHS requires: Lead and other materials banned in RoHS Directive are either (1) below all applicable substance thresholds as defined by the EU or (2) an approved/pending exemption applies. (Note: RoHS implementation details are not fully defined and may change.)

RoHS Declaration

* The part does not contain RoHS restricted substances per the definition above except lead, which is used under the following exemption: Lead in solders to complete a viable electrical connection between semiconductor die and carrier within integrated circuit Flip Chip packages.

Where the part is declared to meet RoHS requirements, it has been verified to be in conformance with 2002/95/EC as we currently understand the requirements. Intel has systems in place to verify conformance with all applicable environmental requirements and to the best of our knowledge the information is true and correct.

LEVEL A MATERIALS AND SUBSTANCES

Materials from Annex A of the EIA/EICTA/JGPSSI Material Composition Declaration Guide and listed in the table below are not contained in this product in quantities above the threshold level for these materials as stated in the EIA/EICTA/JGPSSI Material Composition Declaration Guide, nor intentionally added to this product.

Asbestos	Mercury / Mercury Compounds	Polychlorinated Naphthalenes
Azo colorants	Ozone Depleting Substances	Radioactive Substances
Cadmium / Cadmium Compounds	Polybrominated Biphenyls (PBBs)	Shortchain Chlorinated Paraffins
Hexavalent Chromium	Polybrominated Diphenylethers (PBDEs)	Tributyl Tin (TBT) and Triphenyl Tin (TPT)
Hexavalent Chromium Compounds	Polychlorinated Biphenyls (PCBs)	Tributyl Tin Oxide (TBTO)

If this product contains lead (Pb) above the threshold limit of 1000 ppm, the concentration, location and use for this product are listed below.

	Description of Use	Location in Product	Material Concentration (ppm)
Lead/Lead Compounds	C4 die bump/substrate solder	FLI	3130

LEVEL B MATERIALS AND SUBSTANCES

Antimony/Antimony Compounds	Bismuth/Bismuth Compounds	Phthalates
Arsenic/Arsenic Compounds	Brominated Flame Retardants	Selenium/Selenium Compounds
Beryllium/Beryllium Compounds	Nickel/Nickel Compounds	Vinyl Chloride Polymer (PVC)

If this product contains materials listed in Annex B of the EIA/EICTA/JGPSSI Material Composition Declaration Guide above the threshold level of 1000 ppm, those materials/substances are listed below.

	Description of Use	Location in Product	Material Concentration (ppm)
Brominated Flame Retardant	Flame retardant	Substrate	21000
Nickel	Plating	Substrate	5650

COMMENTS

1. The data on Level A and B materials and substances are based on analytical testing of the following package: FCBGA1 1005, Product Code Name JG82875 (42.5mm x 42.5). Individual unit test results may vary due to differences in production and /or sensitivities of analytical testing methods. Data shown on this MDDS reflect part-level testing intended to validate Intel's RoHS compliance systems. Intel's certification of RoHS compliance at the homogenous material level is based on Supplier Declarations of Conformance.

2. This data sheet is based on the product specified and other packages are assumed to be similar.

3. Data in parts per million (ppm) can be used to estimate content for other packages assumed to be similar.

4. Material mass can be estimated by multiplying concentration (ppm) by product weight.

5. The remainder of this package consists of non-reportable metals (e.g., tin, iron, etc), epoxy resin and other non-metal materials.

INTEL ACCEPTS NO DUTY TO UPDATE THIS MDDS OR TO NOTIFY USERS OF THIS MDDS OF UPDATES OR CHANGES TO THIS MDDS. INTEL SHALL NOT BE LIABLE FOR ANY DAMAGES, DIRECT OR INDIRECT, CONSEQUENTIAL OR OTHERWISE, SUFFERED BY USERS OR THIRD PARTIES AS A RESULT OF THE USERS RELIANCE ON INFORMATION IN THIS MDDS THAT HAS BEEN UPDATED OR CHANGED.



Material Declaration Data Sheet

FCBGA1
 Flip Chip Ball Grid Array1
 PinCount: 456
 Pb Free Product: Yes-Second Level Interconnect

Product Weight (grams): 3.8
 Manufacturer: Intel Corporation
 Revision Date: 4/23/2006

Restrictions on Hazardous Substances (RoHS) Compliance

RoHS Definition

- * Quantity limit of 0.1% by mass (1000 PPM) of homogeneous material for: Lead (Pb), Mercury, Hexavalent Chromium, Polybrominated Biphenyls (PBB), Polybrominated Diphenyl Ethers (PBDE)
- * Quantity limit of 0.01% by mass (100 PPM) of homogeneous material for: Cadmium

Intel understands RoHS requires: Lead and other materials banned in RoHS Directive are either (1) below all applicable substance thresholds as defined by the EU or (2) an approved/pending exemption applies. (Note: RoHS implementation details are not fully defined and may change.)

RoHS Declaration

* The part does not contain RoHS restricted substances per the definition above except lead, which is used under the following exemption: Lead in solders to complete a viable electrical connection between semiconductor die and carrier within integrated circuit Flip Chip packages.

Where the part is declared to meet RoHS requirements, it has been verified to be in conformance with 2002/95/EC as we currently understand the requirements. Intel has systems in place to verify conformance with all applicable environmental requirements and to the best of our knowledge the information is true and correct.

LEVEL A MATERIALS AND SUBSTANCES

Materials from Annex A of the EIA/EICTA/JGPSSI Material Composition Declaration Guide and listed in the table below are not contained in this product in quantities above the threshold level for these materials as stated in the EIA/EICTA/JGPSSI Material Composition Declaration Guide, nor intentionally added to this product.

Asbestos	Mercury / Mercury Compounds	Polychlorinated Naphthalenes
Azo colorants	Ozone Depleting Substances	Radioactive Substances
Cadmium / Cadmium Compounds	Polybrominated Biphenyls (PBBs)	Shortchain Chlorinated Paraffins
Hexavalent Chromium	Polybrominated Diphenylethers (PBDEs)	Tributyl Tin (TBT) and Triphenyl Tin (TPT)
Hexavalent Chromium Compounds	Polychlorinated Biphenyls (PCBs)	Tributyl Tin Oxide (TBTO)

If this product contains lead (Pb) above the threshold limit of 1000 ppm, the concentration, location and use for this product are listed below.

	Description of Use	Location in Product	Material Concentration (ppm)
Lead/Lead Compounds			

LEVEL B MATERIALS AND SUBSTANCES

Antimony/Antimony Compounds	Bismuth/Bismuth Compounds	Phthalates
Arsenic/Arsenic Compounds	Brominated Flame Retardants	Selenium/Selenium Compounds
Beryllium/Beryllium Compounds	Nickel/Nickel Compounds	Vinyl Chloride Polymer (PVC)

If this product contains materials listed in Annex B of the EIA/EICTA/JGPSSI Material Composition Declaration Guide above the threshold level of 1000 ppm, those materials/substances are listed below.

	Description of Use	Location in Product	Material Concentration (ppm)
Brominated Flame Retardant	Flame retardant	Substrate	24100
Nickel	Plating	Substrate	2450

COMMENTS

1. The data on Level A and B materials and substances are based on analytical testing of the following package: FCBGA1 456, Product Code Name QGMXP5400 (35mm x 35mm). Individual unit test results may vary due to differences in production and /or sensitivities of analytical testing methods. Data shown on this MDDS reflect part-level testing intended to validate Intel's RoHS compliance systems. Intel's certification of RoHS compliance at the homogenous material level is based on Supplier Declarations of Conformance.

2. This data sheet is based on the product specified and other packages are assumed to be similar.

3. Data in parts per million (ppm) can be used to estimate content for other packages assumed to be similar.

4. Material mass can be estimated by multiplying concentration (ppm) by product weight.

5. The remainder of this package consists of non-reportable metals (e.g., tin, iron, etc), epoxy resin and other non-metal materials.

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Material Declaration Data Sheet

FCBGA1
 Flip Chip Ball Grid Array1
 PinCount: 456
 Pb Free Product: Yes-Second Level Interconnect

Product Weight (grams): 12.3
 Manufacturer: Intel Corporation
 Revision Date: 4/23/2006

Restrictions on Hazardous Substances (RoHS) Compliance

RoHS Definition

- * Quantity limit of 0.1% by mass (1000 PPM) of homogeneous material for: Lead (Pb), Mercury, Hexavalent Chromium, Polybrominated Biphenyls (PBB), Polybrominated Diphenyl Ethers (PBDE)
- * Quantity limit of 0.01% by mass (100 PPM) of homogeneous material for: Cadmium

Intel understands RoHS requires: Lead and other materials banned in RoHS Directive are either (1) below all applicable substance thresholds as defined by the EU or (2) an approved/pending exemption applies. (Note: RoHS implementation details are not fully defined and may change.)

RoHS Declaration

* The part does not contain RoHS restricted substances per the definition above except lead, which is used under the following exemption: Lead in solders to complete a viable electrical connection between semiconductor die and carrier within integrated circuit Flip Chip packages.

Where the part is declared to meet RoHS requirements, it has been verified to be in conformance with 2002/95/EC as we currently understand the requirements. Intel has systems in place to verify conformance with all applicable environmental requirements and to the best of our knowledge the information is true and correct.

LEVEL A MATERIALS AND SUBSTANCES

Materials from Annex A of the EIA/EICTA/JGPSSI Material Composition Declaration Guide and listed in the table below are not contained in this product in quantities above the threshold level for these materials as stated in the EIA/EICTA/JGPSSI Material Composition Declaration Guide, nor intentionally added to this product.

Asbestos	Mercury / Mercury Compounds	Polychlorinated Naphthalenes
Azo colorants	Ozone Depleting Substances	Radioactive Substances
Cadmium / Cadmium Compounds	Polybrominated Biphenyls (PBBs)	Shortchain Chlorinated Paraffins
Hexavalent Chromium	Polybrominated Diphenylethers (PBDEs)	Tributyl Tin (TBT) and Triphenyl Tin (TPT)
Hexavalent Chromium Compounds	Polychlorinated Biphenyls (PCBs)	Tributyl Tin Oxide (TBTO)

If this product contains lead (Pb) above the threshold limit of 1000 ppm, the concentration, location and use for this product are listed below.

	Description of Use	Location in Product	Material Concentration (ppm)
Lead/Lead Compounds			

LEVEL B MATERIALS AND SUBSTANCES

Antimony/Antimony Compounds	Bismuth/Bismuth Compounds	Phthalates
Arsenic/Arsenic Compounds	Brominated Flame Retardants	Selenium/Selenium Compounds
Beryllium/Beryllium Compounds	Nickel/Nickel Compounds	Vinyl Chloride Polymer (PVC)

If this product contains materials listed in Annex B of the EIA/EICTA/JGPSSI Material Composition Declaration Guide above the threshold level of 1000 ppm, those materials/substances are listed below.

	Description of Use	Location in Product	Material Concentration (ppm)
Brominated Flame Retardant	Flame retardant	Substrate	6210
Nickel	Plating	Substrate	6990

COMMENTS

1. The data on Level A and B materials and substances are based on analytical testing of the following package: FCBGA1 456, Product Code Name QGMXP5800 (35mm x 35mm). Individual unit test results may vary due to differences in production and /or sensitivities of analytical testing methods. Data shown on this MDDS reflect part-level testing intended to validate Intel's RoHS compliance systems. Intel's certification of RoHS compliance at the homogenous material level is based on Supplier Declarations of Conformance.

2. This data sheet is based on the product specified and other packages are assumed to be similar.

3. Data in parts per million (ppm) can be used to estimate content for other packages assumed to be similar.

4. Material mass can be estimated by multiplying concentration (ppm) by product weight.

5. The remainder of this package consists of non-reportable metals (e.g., tin, iron, etc), epoxy resin and other non-metal materials.

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Material Declaration Data Sheet

FCBGA1
 Flip Chip Ball Grid Array1
 PinCount: 567
 Pb Free Product: Yes-Second Level Interconnect

Product Weight (grams): 3.5
 Manufacturer: Intel Corporation
 Revision Date: 4/30/2006

Restrictions on Hazardous Substances (RoHS) Compliance

RoHS Definition

- * Quantity limit of 0.1% by mass (1000 PPM) of homogeneous material for: Lead (Pb), Mercury, Hexavalent Chromium, Polybrominated Biphenyls (PBB), Polybrominated Diphenyl Ethers (PBDE)
- * Quantity limit of 0.01% by mass (100 PPM) of homogeneous material for: Cadmium

Intel understands RoHS requires: Lead and other materials banned in RoHS Directive are either (1) below all applicable substance thresholds as defined by the EU or (2) an approved/pending exemption applies. (Note: RoHS implementation details are not fully defined and may change.)

RoHS Declaration

* The part does not contain RoHS restricted substances per the definition above except lead, which is used under the following exemption: Lead in solders to complete a viable electrical connection between semiconductor die and carrier within integrated circuit Flip Chip packages.

Where the part is declared to meet RoHS requirements, it has been verified to be in conformance with 2002/95/EC as we currently understand the requirements. Intel has systems in place to verify conformance with all applicable environmental requirements and to the best of our knowledge the information is true and correct.

LEVEL A MATERIALS AND SUBSTANCES

Materials from Annex A of the EIA/EICTA/JGPSSI Material Composition Declaration Guide and listed in the table below are not contained in this product in quantities above the threshold level for these materials as stated in the EIA/EICTA/JGPSSI Material Composition Declaration Guide, nor intentionally added to this product.

Asbestos	Mercury / Mercury Compounds	Polychlorinated Naphthalenes
Azo colorants	Ozone Depleting Substances	Radioactive Substances
Cadmium / Cadmium Compounds	Polybrominated Biphenyls (PBBs)	Shortchain Chlorinated Paraffins
Hexavalent Chromium	Polybrominated Diphenylethers (PBDEs)	Tributyl Tin (TBT) and Triphenyl Tin (TPT)
Hexavalent Chromium Compounds	Polychlorinated Biphenyls (PCBs)	Tributyl Tin Oxide (TBTO)

If this product contains lead (Pb) above the threshold limit of 1000 ppm, the concentration, location and use for this product are listed below.

	Description of Use	Location in Product	Material Concentration (ppm)
Lead/Lead Compounds			

LEVEL B MATERIALS AND SUBSTANCES

Antimony/Antimony Compounds	Bismuth/Bismuth Compounds	Phthalates
Arsenic/Arsenic Compounds	Brominated Flame Retardants	Selenium/Selenium Compounds
Beryllium/Beryllium Compounds	Nickel/Nickel Compounds	Vinyl Chloride Polymer (PVC)

If this product contains materials listed in Annex B of the EIA/EICTA/JGPSSI Material Composition Declaration Guide above the threshold level of 1000 ppm, those materials/substances are listed below.

	Description of Use	Location in Product	Material Concentration (ppm)
Brominated Flame Retardant	Flame retardant	Substrate	30100

COMMENTS

1. The data on Level A and B materials and substances are based on analytical testing of the following package: FCBGA1 567, Product Code Name JG82870P2 (31mm x 31mm). Individual unit test results may vary due to differences in production and/or sensitivities of analytical testing methods. Data shown on this MDDS reflect part-level testing intended to validate Intel's RoHS compliance systems. Intel's certification of RoHS compliance at the homogenous material level is based on Supplier Declarations of Conformance.

2. This data sheet is based on the product specified and other packages are assumed to be similar.
3. Data in parts per million (ppm) can be used to estimate content for other packages assumed to be similar.
4. Material mass can be estimated by multiplying concentration (ppm) by product weight.
5. The remainder of this package consists of non-reportable metals (e.g., tin, iron, etc), epoxy resin and other non-metal materials.

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Material Declaration Data Sheet

FCBGA1
 Flip Chip Ball Grid Array1
 PinCount: 593
 Pb Free Product: Yes-Second Level Interconnect

Product Weight (grams): 4.5
 Manufacturer: Intel Corporation
 Revision Date: 4/25/2006

Restrictions on Hazardous Substances (RoHS) Compliance

RoHS Definition

- * Quantity limit of 0.1% by mass (1000 PPM) of homogeneous material for: Lead (Pb), Mercury, Hexavalent Chromium, Polybrominated Biphenyls (PBB), Polybrominated Diphenyl Ethers (PBDE)
- * Quantity limit of 0.01% by mass (100 PPM) of homogeneous material for: Cadmium

Intel understands RoHS requires: Lead and other materials banned in RoHS Directive are either (1) below all applicable substance thresholds as defined by the EU or (2) an approved/pending exemption applies. (Note: RoHS implementation details are not fully defined and may change.)

RoHS Declaration

* The part does not contain RoHS restricted substances per the definition above except lead, which is used under the following exemption: Lead in solders to complete a viable electrical connection between semiconductor die and carrier within integrated circuit Flip Chip packages.

Where the part is declared to meet RoHS requirements, it has been verified to be in conformance with 2002/95/EC as we currently understand the requirements. Intel has systems in place to verify conformance with all applicable environmental requirements and to the best of our knowledge the information is true and correct.

LEVEL A MATERIALS AND SUBSTANCES

Materials from Annex A of the EIA/EICTA/JGPSSI Material Composition Declaration Guide and listed in the table below are not contained in this product in quantities above the threshold level for these materials as stated in the EIA/EICTA/JGPSSI Material Composition Declaration Guide, nor intentionally added to this product.

Asbestos	Mercury / Mercury Compounds	Polychlorinated Naphthalenes
Azo colorants	Ozone Depleting Substances	Radioactive Substances
Cadmium / Cadmium Compounds	Polybrominated Biphenyls (PBBs)	Shortchain Chlorinated Paraffins
Hexavalent Chromium	Polybrominated Diphenylethers (PBDEs)	Tributyl Tin (TBT) and Triphenyl Tin (TPT)
Hexavalent Chromium Compounds	Polychlorinated Biphenyls (PCBs)	Tributyl Tin Oxide (TBTO)

If this product contains lead (Pb) above the threshold limit of 1000 ppm, the concentration, location and use for this product are listed below.

	Description of Use	Location in Product	Material Concentration (ppm)
Lead/Lead Compounds	C4 die bump/substrate solder	FLI	2210

LEVEL B MATERIALS AND SUBSTANCES

Antimony/Antimony Compounds	Bismuth/Bismuth Compounds	Phthalates
Arsenic/Arsenic Compounds	Brominated Flame Retardants	Selenium/Selenium Compounds
Beryllium/Beryllium Compounds	Nickel/Nickel Compounds	Vinyl Chloride Polymer (PVC)

If this product contains materials listed in Annex B of the EIA/EICTA/JGPSSI Material Composition Declaration Guide above the threshold level of 1000 ppm, those materials/substances are listed below.

	Description of Use	Location in Product	Material Concentration (ppm)
Brominated Flame Retardant	Flame retardant	Substrate	19700
Nickel	Plating	Substrate	2790

COMMENTS

1. The data on Level A and B materials and substances are based on analytical testing of the following package: FCBGA1 932, Product Code Name JG82845 (37.5mm x 37.5mm). Individual unit test results may vary due to differences in production and /or sensitivities of analytical testing methods. Data shown on this MDDS reflect part-level testing intended to validate Intel's RoHS compliance systems. Intel's certification of RoHS compliance at the homogenous material level is based on Supplier Declarations of Conformance.

2. This data sheet is based on the product specified and other packages are assumed to be similar.

3. Data in parts per million (ppm) can be used to estimate content for other packages assumed to be similar.

4. Material mass can be estimated by multiplying concentration (ppm) by product weight.

5. The remainder of this package consists of non-reportable metals (e.g., tin, iron, etc), epoxy resin and other non-metal materials.

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Material Declaration Data Sheet

FCBGA1
 Flip Chip Ball Grid Array1
 PinCount: 732
 Pb Free Product: Yes-Second Level Interconnect

Product Weight (grams): 5.2
 Manufacturer: Intel Corporation
 Revision Date: 4/23/2006

Restrictions on Hazardous Substances (RoHS) Compliance

RoHS Definition

- * Quantity limit of 0.1% by mass (1000 PPM) of homogeneous material for: Lead (Pb), Mercury, Hexavalent Chromium, Polybrominated Biphenyls (PBB), Polybrominated Diphenyl Ethers (PBDE)
- * Quantity limit of 0.01% by mass (100 PPM) of homogeneous material for: Cadmium

Intel understands RoHS requires: Lead and other materials banned in RoHS Directive are either (1) below all applicable substance thresholds as defined by the EU or (2) an approved/pending exemption applies. (Note: RoHS implementation details are not fully defined and may change.)

RoHS Declaration

* The part does not contain RoHS restricted substances per the definition above except lead, which is used under the following exemption: Lead in solders to complete a viable electrical connection between semiconductor die and carrier within integrated circuit Flip Chip packages.

Where the part is declared to meet RoHS requirements, it has been verified to be in conformance with 2002/95/EC as we currently understand the requirements. Intel has systems in place to verify conformance with all applicable environmental requirements and to the best of our knowledge the information is true and correct.

LEVEL A MATERIALS AND SUBSTANCES

Materials from Annex A of the EIA/EICTA/JGPSSI Material Composition Declaration Guide and listed in the table below are not contained in this product in quantities above the threshold level for these materials as stated in the EIA/EICTA/JGPSSI Material Composition Declaration Guide, nor intentionally added to this product.

Asbestos	Mercury / Mercury Compounds	Polychlorinated Naphthalenes
Azo colorants	Ozone Depleting Substances	Radioactive Substances
Cadmium / Cadmium Compounds	Polybrominated Biphenyls (PBBs)	Shortchain Chlorinated Paraffins
Hexavalent Chromium	Polybrominated Diphenylethers (PBDEs)	Tributyl Tin (TBT) and Triphenyl Tin (TPT)
Hexavalent Chromium Compounds	Polychlorinated Biphenyls (PCBs)	Tributyl Tin Oxide (TBTO)

If this product contains lead (Pb) above the threshold limit of 1000 ppm, the concentration, location and use for this product are listed below.

	Description of Use	Location in Product	Material Concentration (ppm)
Lead/Lead Compounds	C4 die bump/substrate solder	FLI	1050

LEVEL B MATERIALS AND SUBSTANCES

Antimony/Antimony Compounds	Bismuth/Bismuth Compounds	Phthalates
Arsenic/Arsenic Compounds	Brominated Flame Retardants	Selenium/Selenium Compounds
Beryllium/Beryllium Compounds	Nickel/Nickel Compounds	Vinyl Chloride Polymer (PVC)

If this product contains materials listed in Annex B of the EIA/EICTA/JGPSSI Material Composition Declaration Guide above the threshold level of 1000 ppm, those materials/substances are listed below.

	Description of Use	Location in Product	Material Concentration (ppm)
Brominated Flame Retardant	Flame retardant	Substrate	26100
Nickel	Plating	Substrate	1740

COMMENTS

1. The data on Level A and B materials and substances are based on analytical testing of the following package: FCBGA1 732, Product Code Name JG82852GM (37.5mm x 37.5mm). Individual unit test results may vary due to differences in production and /or sensitivities of analytical testing methods. Data shown on this MDDS reflect part-level testing intended to validate Intel's RoHS compliance systems. Intel's certification of RoHS compliance at the homogenous material level is based on Supplier Declarations of Conformance.

2. This data sheet is based on the product specified and other packages are assumed to be similar.

3. Data in parts per million (ppm) can be used to estimate content for other packages assumed to be similar.

4. Material mass can be estimated by multiplying concentration (ppm) by product weight.

5. The remainder of this package consists of non-reportable metals (e.g., tin, iron, etc), epoxy resin and other non-metal materials.

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Material Declaration Data Sheet

FCBGA1
 Flip Chip Ball Grid Array1
 PinCount: 760
 Pb Free Product: Yes-Second Level Interconnect

Product Weight (grams): 4.6
 Manufacturer: Intel Corporation
 Revision Date: 4/25/2006

Restrictions on Hazardous Substances (RoHS) Compliance

RoHS Definition

- * Quantity limit of 0.1% by mass (1000 PPM) of homogeneous material for: Lead (Pb), Mercury, Hexavalent Chromium, Polybrominated Biphenyls (PBB), Polybrominated Diphenyl Ethers (PBDE)
- * Quantity limit of 0.01% by mass (100 PPM) of homogeneous material for: Cadmium

Intel understands RoHS requires: Lead and other materials banned in RoHS Directive are either (1) below all applicable substance thresholds as defined by the EU or (2) an approved/pending exemption applies. (Note: RoHS implementation details are not fully defined and may change.)

RoHS Declaration

* The part does not contain RoHS restricted substances per the definition above except lead, which is used under the following exemption: Lead in solders to complete a viable electrical connection between semiconductor die and carrier within integrated circuit Flip Chip packages.

Where the part is declared to meet RoHS requirements, it has been verified to be in conformance with 2002/95/EC as we currently understand the requirements. Intel has systems in place to verify conformance with all applicable environmental requirements and to the best of our knowledge the information is true and correct.

LEVEL A MATERIALS AND SUBSTANCES

Materials from Annex A of the EIA/EICTA/JGPSSI Material Composition Declaration Guide and listed in the table below are not contained in this product in quantities above the threshold level for these materials as stated in the EIA/EICTA/JGPSSI Material Composition Declaration Guide, nor intentionally added to this product.

Asbestos	Mercury / Mercury Compounds	Polychlorinated Naphthalenes
Azo colorants	Ozone Depleting Substances	Radioactive Substances
Cadmium / Cadmium Compounds	Polybrominated Biphenyls (PBBs)	Shortchain Chlorinated Paraffins
Hexavalent Chromium	Polybrominated Diphenylethers (PBDEs)	Tributyl Tin (TBT) and Triphenyl Tin (TPT)
Hexavalent Chromium Compounds	Polychlorinated Biphenyls (PCBs)	Tributyl Tin Oxide (TBTO)

If this product contains lead (Pb) above the threshold limit of 1000 ppm, the concentration, location and use for this product are listed below.

	Description of Use	Location in Product	Material Concentration (ppm)
Lead/Lead Compounds	C4 die bump/substrate solder	FLI	1050

LEVEL B MATERIALS AND SUBSTANCES

Antimony/Antimony Compounds	Bismuth/Bismuth Compounds	Phthalates
Arsenic/Arsenic Compounds	Brominated Flame Retardants	Selenium/Selenium Compounds
Beryllium/Beryllium Compounds	Nickel/Nickel Compounds	Vinyl Chloride Polymer (PVC)

If this product contains materials listed in Annex B of the EIA/EICTA/JGPSSI Material Composition Declaration Guide above the threshold level of 1000 ppm, those materials/substances are listed below.

	Description of Use	Location in Product	Material Concentration (ppm)
Brominated Flame Retardant	Flame retardant	Substrate	26100
Nickel	Plating	Substrate	1740

COMMENTS

1. The data on Level A and B materials and substances are based on analytical testing of the following package: FCBGA1 732, Product Code Name JG82845G (37.5mm x 37.5mm). Individual unit test results may vary due to differences in production and /or sensitivities of analytical testing methods. Data shown on this MDDS reflect part-level testing intended to validate Intel's RoHS compliance systems. Intel's certification of RoHS compliance at the homogenous material level is based on Supplier Declarations of Conformance.

2. This data sheet is based on the product specified and other packages are assumed to be similar.

3. Data in parts per million (ppm) can be used to estimate content for other packages assumed to be similar.

4. Material mass can be estimated by multiplying concentration (ppm) by product weight.

5. The remainder of this package consists of non-reportable metals (e.g., tin, iron, etc), epoxy resin and other non-metal materials.

INTEL ACCEPTS NO DUTY TO UPDATE THIS MDDS OR TO NOTIFY USERS OF THIS MDDS OF UPDATES OR CHANGES TO THIS MDDS. INTEL SHALL NOT BE LIABLE FOR ANY DAMAGES, DIRECT OR INDIRECT, CONSEQUENTIAL OR OTHERWISE, SUFFERED BY USERS OR THIRD PARTIES AS A RESULT OF THE USERS RELIANCE ON INFORMATION IN THIS MDDS THAT HAS BEEN UPDATED OR CHANGED.



Material Declaration Data Sheet

FCBGA1
 Flip Chip Ball Grid Array1
 PinCount: 932
 Pb Free Product: Yes-Second Level Interconnect

Product Weight (grams): 4.7
 Manufacturer: Intel Corporation
 Revision Date: 4/19/2005

Restrictions on Hazardous Substances (RoHS) Compliance

RoHS Definition

- * Quantity limit of 0.1% by mass (1000 PPM) of homogeneous material for: Lead (Pb), Mercury, Hexavalent Chromium, Polybrominated Biphenyls (PBB), Polybrominated Diphenyl Ethers (PBDE)
- * Quantity limit of 0.01% by mass (100 PPM) of homogeneous material for: Cadmium

Intel understands RoHS requires: Lead and other materials banned in RoHS Directive are either (1) below all applicable substance thresholds as defined by the EU or (2) an approved/pending exemption applies. (Note: RoHS implementation details are not fully defined and may change.)

RoHS Declaration

* The part does not contain RoHS restricted substances per the definition above except lead, which is used under the following exemption: Lead in solders to complete a viable electrical connection between semiconductor die and carrier within integrated circuit Flip Chip packages.

Where the part is declared to meet RoHS requirements, it has been verified to be in conformance with 2002/95/EC as we currently understand the requirements. Intel has systems in place to verify conformance with all applicable environmental requirements and to the best of our knowledge the information is true and correct.

LEVEL A MATERIALS AND SUBSTANCES

Materials from Annex A of the EIA/EICTA/JGPSSI Material Composition Declaration Guide and listed in the table below are not contained in this product in quantities above the threshold level for these materials as stated in the EIA/EICTA/JGPSSI Material Composition Declaration Guide, nor intentionally added to this product.

Asbestos	Mercury / Mercury Compounds	Polychlorinated Naphthalenes
Azo colorants	Ozone Depleting Substances	Radioactive Substances
Cadmium / Cadmium Compounds	Polybrominated Biphenyls (PBBs)	Shortchain Chlorinated Paraffins
Hexavalent Chromium	Polybrominated Diphenylethers (PBDEs)	Tributyl Tin (TBT) and Triphenyl Tin (TPT)
Hexavalent Chromium Compounds	Polychlorinated Biphenyls (PCBs)	Tributyl Tin Oxide (TBTO)

If this product contains lead (Pb) above the threshold limit of 1000 ppm, the concentration, location and use for this product are listed below.

	Description of Use	Location in Product	Material Concentration (ppm)
Lead/Lead Compounds	C4 die bump/substrate solder	FLI	2210

LEVEL B MATERIALS AND SUBSTANCES

Antimony/Antimony Compounds	Bismuth/Bismuth Compounds	Phthalates
Arsenic/Arsenic Compounds	Brominated Flame Retardants	Selenium/Selenium Compounds
Beryllium/Beryllium Compounds	Nickel/Nickel Compounds	Vinyl Chloride Polymer (PVC)

If this product contains materials listed in Annex B of the EIA/EICTA/JGPSSI Material Composition Declaration Guide above the threshold level of 1000 ppm, those materials/substances are listed below.

	Description of Use	Location in Product	Material Concentration (ppm)
Brominated Flame Retardant	Flame retardant	Substrate	19700
Nickel	Plating	Substrate	2790

COMMENTS

1. The data on Level A and B materials and substances are based on analytical testing of the following package: FCBGA1 932, Product Code Name JG82865GV. Individual unit test results may vary due to differences in production and/or sensitivities of analytical testing methods. Data shown on this MDDS reflect part-level testing intended to validate Intel's RoHS compliance systems. Intel's certification of RoHS compliance at the homogenous material level is based on Supplier Declarations of Conformance.

2. This data sheet is based on the product specified and other packages are assumed to be similar.
3. Data in parts per million (ppm) can be used to estimate content for other packages assumed to be similar.
4. Material mass can be estimated by multiplying concentration (ppm) by product weight.
5. The remainder of this package consists of non-reportable metals (e.g., tin, iron, etc), epoxy resin and other non-metal materials.

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Material Declaration Data Sheet

FCBGA1
 Flip Chip Ball Grid Array1
 PinCount: 932
 Pb Free Product: Yes-Second Level Interconnect

Product Weight (grams): 4.7
 Manufacturer: Intel Corporation
 Revision Date: 4/23/2006

Restrictions on Hazardous Substances (RoHS) Compliance

RoHS Definition

- * Quantity limit of 0.1% by mass (1000 PPM) of homogeneous material for: Lead (Pb), Mercury, Hexavalent Chromium, Polybrominated Biphenyls (PBB), Polybrominated Diphenyl Ethers (PBDE)
- * Quantity limit of 0.01% by mass (100 PPM) of homogeneous material for: Cadmium

Intel understands RoHS requires: Lead and other materials banned in RoHS Directive are either (1) below all applicable substance thresholds as defined by the EU or (2) an approved/pending exemption applies. (Note: RoHS implementation details are not fully defined and may change.)

RoHS Declaration

* The part does not contain RoHS restricted substances per the definition above except lead, which is used under the following exemption: Lead in solders to complete a viable electrical connection between semiconductor die and carrier within integrated circuit Flip Chip packages.

Where the part is declared to meet RoHS requirements, it has been verified to be in conformance with 2002/95/EC as we currently understand the requirements. Intel has systems in place to verify conformance with all applicable environmental requirements and to the best of our knowledge the information is true and correct.

LEVEL A MATERIALS AND SUBSTANCES

Materials from Annex A of the EIA/EICTA/JGPSSI Material Composition Declaration Guide and listed in the table below are not contained in this product in quantities above the threshold level for these materials as stated in the EIA/EICTA/JGPSSI Material Composition Declaration Guide, nor intentionally added to this product.

Asbestos	Mercury / Mercury Compounds	Polychlorinated Naphthalenes
Azo colorants	Ozone Depleting Substances	Radioactive Substances
Cadmium / Cadmium Compounds	Polybrominated Biphenyls (PBBs)	Shortchain Chlorinated Paraffins
Hexavalent Chromium	Polybrominated Diphenylethers (PBDEs)	Tributyl Tin (TBT) and Triphenyl Tin (TPT)
Hexavalent Chromium Compounds	Polychlorinated Biphenyls (PCBs)	Tributyl Tin Oxide (TBTO)

If this product contains lead (Pb) above the threshold limit of 1000 ppm, the concentration, location and use for this product are listed below.

	Description of Use	Location in Product	Material Concentration (ppm)
Lead/Lead Compounds	C4 die bump/substrate solder	FLI	2210

LEVEL B MATERIALS AND SUBSTANCES

Antimony/Antimony Compounds	Bismuth/Bismuth Compounds	Phthalates
Arsenic/Arsenic Compounds	Brominated Flame Retardants	Selenium/Selenium Compounds
Beryllium/Beryllium Compounds	Nickel/Nickel Compounds	Vinyl Chloride Polymer (PVC)

If this product contains materials listed in Annex B of the EIA/EICTA/JGPSSI Material Composition Declaration Guide above the threshold level of 1000 ppm, those materials/substances are listed below.

	Description of Use	Location in Product	Material Concentration (ppm)
Brominated Flame Retardant	Flame retardant	Substrate	19700
Nickel	Plating	Substrate	2790

COMMENTS

1. The data on Level A and B materials and substances are based on analytical testing of the following package: FCBGA1 932, Product Code Name Springdale (37.5mm x 37.5mm). Individual unit test results may vary due to differences in production and /or sensitivities of analytical testing methods. Data shown on this MDDS reflect part-level testing intended to validate Intel's RoHS compliance systems. Intel's certification of RoHS compliance at the homogenous material level is based on Supplier Declarations of Conformance.

2. This data sheet is based on the product specified and other packages are assumed to be similar.

3. Data in parts per million (ppm) can be used to estimate content for other packages assumed to be similar.

4. Material mass can be estimated by multiplying concentration (ppm) by product weight.

5. The remainder of this package consists of non-reportable metals (e.g., tin, iron, etc), epoxy resin and other non-metal materials.

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Material Declaration Data Sheet

FCBGA2
 Flip Chip Ball Grid Array2
 PinCount: 1356
 Pb Free Product: Yes-Second Level Interconnect

Product Weight (grams): 23.4
 Manufacturer: Intel Corporation
 Revision Date: 4/27/2006

Restrictions on Hazardous Substances (RoHS) Compliance

RoHS Definition

- * Quantity limit of 0.1% by mass (1000 PPM) of homogeneous material for: Lead (Pb), Mercury, Hexavalent Chromium, Polybrominated Biphenyls (PBB), Polybrominated Diphenyl Ethers (PBDE)
- * Quantity limit of 0.01% by mass (100 PPM) of homogeneous material for: Cadmium

Intel understands RoHS requires: Lead and other materials banned in RoHS Directive are either (1) below all applicable substance thresholds as defined by the EU or (2) an approved/pending exemption applies. (Note: RoHS implementation details are not fully defined and may change.)

RoHS Declaration

* The part does not contain RoHS restricted substances per the definition above except lead, which is used under the following exemption: Lead in solders to complete a viable electrical connection between semiconductor die and carrier within integrated circuit Flip Chip packages.

Where the part is declared to meet RoHS requirements, it has been verified to be in conformance with 2002/95/EC as we currently understand the requirements. Intel has systems in place to verify conformance with all applicable environmental requirements and to the best of our knowledge the information is true and correct.

LEVEL A MATERIALS AND SUBSTANCES

Materials from Annex A of the EIA/EICTA/JGPSSI Material Composition Declaration Guide and listed in the table below are not contained in this product in quantities above the threshold level for these materials as stated in the EIA/EICTA/JGPSSI Material Composition Declaration Guide, nor intentionally added to this product.

Asbestos	Mercury / Mercury Compounds	Polychlorinated Naphthalenes
Azo colorants	Ozone Depleting Substances	Radioactive Substances
Cadmium / Cadmium Compounds	Polybrominated Biphenyls (PBBs)	Shortchain Chlorinated Paraffins
Hexavalent Chromium	Polybrominated Diphenylethers (PBDEs)	Tributyl Tin (TBT) and Triphenyl Tin (TPT)
Hexavalent Chromium Compounds	Polychlorinated Biphenyls (PCBs)	Tributyl Tin Oxide (TBTO)

If this product contains lead (Pb) above the threshold limit of 1000 ppm, the concentration, location and use for this product are listed below.

	Description of Use	Location in Product	Material Concentration (ppm)
Lead/Lead Compounds	C4 die bump/substrate solder	FLI	1910

LEVEL B MATERIALS AND SUBSTANCES

Antimony/Antimony Compounds	Bismuth/Bismuth Compounds	Phthalates
Arsenic/Arsenic Compounds	Brominated Flame Retardants	Selenium/Selenium Compounds
Beryllium/Beryllium Compounds	Nickel/Nickel Compounds	Vinyl Chloride Polymer (PVC)

If this product contains materials listed in Annex B of the EIA/EICTA/JGPSSI Material Composition Declaration Guide above the threshold level of 1000 ppm, those materials/substances are listed below.

	Description of Use	Location in Product	Material Concentration (ppm)
Brominated Flame Retardant	Flame retardant	Substrate	2720
Nickel	Plating	Substrate	3160

COMMENTS

1. The data on Level A and B materials and substances are based on analytical testing of the following package: FCBGA2 1356, Product Code Name NPIXP2400BA (37.5mm x 37.5mm w LHS). Individual unit test results may vary due to differences in production and /or sensitivities of analytical testing methods. Data shown on this MDDS reflect part-level testing intended to validate Intel's RoHS compliance systems. Intel's certification of RoHS compliance at the homogenous material level is based on Supplier Declarations of Conformance.

2. This data sheet is based on the product specified and other packages are assumed to be similar.

3. Data in parts per million (ppm) can be used to estimate content for other packages assumed to be similar.

4. Material mass can be estimated by multiplying concentration (ppm) by product weight.

5. The remainder of this package consists of non-reportable metals (e.g., tin, iron, etc), epoxy resin and other non-metal materials.

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Material Declaration Data Sheet

FCBGA2
 Flip Chip Ball Grid Array2
 PinCount: 479
 Pb Free Product: Yes-Second Level Interconnect

Product Weight (grams): 4.7
 Manufacturer: Intel Corporation
 Revision Date: 4/20/2006

Restrictions on Hazardous Substances (RoHS) Compliance

RoHS Definition

- * Quantity limit of 0.1% by mass (1000 PPM) of homogeneous material for: Lead (Pb), Mercury, Hexavalent Chromium, Polybrominated Biphenyls (PBB), Polybrominated Diphenyl Ethers (PBDE)
- * Quantity limit of 0.01% by mass (100 PPM) of homogeneous material for: Cadmium

Intel understands RoHS requires: Lead and other materials banned in RoHS Directive are either (1) below all applicable substance thresholds as defined by the EU or (2) an approved/pending exemption applies. (Note: RoHS implementation details are not fully defined and may change.)

RoHS Declaration

* The part does not contain RoHS restricted substances per the definition above except lead, which is used under the following exemption: Lead in solders to complete a viable electrical connection between semiconductor die and carrier within integrated circuit Flip Chip packages.

Where the part is declared to meet RoHS requirements, it has been verified to be in conformance with 2002/95/EC as we currently understand the requirements. Intel has systems in place to verify conformance with all applicable environmental requirements and to the best of our knowledge the information is true and correct.

LEVEL A MATERIALS AND SUBSTANCES

Materials from Annex A of the EIA/EICTA/JGPSSI Material Composition Declaration Guide and listed in the table below are not contained in this product in quantities above the threshold level for these materials as stated in the EIA/EICTA/JGPSSI Material Composition Declaration Guide, nor intentionally added to this product.

Asbestos	Mercury / Mercury Compounds	Polychlorinated Naphthalenes
Azo colorants	Ozone Depleting Substances	Radioactive Substances
Cadmium / Cadmium Compounds	Polybrominated Biphenyls (PBBs)	Shortchain Chlorinated Paraffins
Hexavalent Chromium	Polybrominated Diphenylethers (PBDEs)	Tributyl Tin (TBT) and Triphenyl Tin (TPT)
Hexavalent Chromium Compounds	Polychlorinated Biphenyls (PCBs)	Tributyl Tin Oxide (TBTO)

If this product contains lead (Pb) above the threshold limit of 1000 ppm, the concentration, location and use for this product are listed below.

	Description of Use	Location in Product	Material Concentration (ppm)
Lead/Lead Compounds	C4 die bump/substrate solder	FLI	2330

LEVEL B MATERIALS AND SUBSTANCES

Antimony/Antimony Compounds	Bismuth/Bismuth Compounds	Phthalates
Arsenic/Arsenic Compounds	Brominated Flame Retardants	Selenium/Selenium Compounds
Beryllium/Beryllium Compounds	Nickel/Nickel Compounds	Vinyl Chloride Polymer (PVC)

If this product contains materials listed in Annex B of the EIA/EICTA/JGPSSI Material Composition Declaration Guide above the threshold level of 1000 ppm, those materials/substances are listed below.

	Description of Use	Location in Product	Material Concentration (ppm)
Brominated Flame Retardant	Flame retardant	Substrate	6900
Nickel	Plating	Substrate	2800

COMMENTS

1. The data on Level A and B materials and substances are based on analytical testing of the following package: FCBGA2 479, Product Code Name NK80530VZ. Individual unit test results may vary due to differences in production and/or sensitivities of analytical testing methods. Data shown on this MDDS reflect part-level testing intended to validate Intel's RoHS compliance systems. Intel's certification of RoHS compliance at the homogenous material level is based on Supplier Declarations of Conformance.

2. This data sheet is based on the product specified and other packages are assumed to be similar.
3. Data in parts per million (ppm) can be used to estimate content for other packages assumed to be similar.
4. Material mass can be estimated by multiplying concentration (ppm) by product weight.
5. The remainder of this package consists of non-reportable metals (e.g., tin, iron, etc), epoxy resin and other non-metal materials.

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Material Declaration Data Sheet

FCBGA2
 Flip Chip Ball Grid Array2
 PinCount: 479
 Pb Free Product: Yes-Second Level Interconnect

Product Weight (grams): 4.7
 Manufacturer: Intel Corporation
 Revision Date: 11/16/2005

Restrictions on Hazardous Substances (RoHS) Compliance

RoHS Definition

- * Quantity limit of 0.1% by mass (1000 PPM) of homogeneous material for: Lead (Pb), Mercury, Hexavalent Chromium, Polybrominated Biphenyls (PBB), Polybrominated Diphenyl Ethers (PBDE)
- * Quantity limit of 0.01% by mass (100 PPM) of homogeneous material for: Cadmium

Intel understands RoHS requires: Lead and other materials banned in RoHS Directive are either (1) below all applicable substance thresholds as defined by the EU or (2) an approved/pending exemption applies. (Note: RoHS implementation details are not fully defined and may change.)

RoHS Declaration

* The part does not contain RoHS restricted substances per the definition above except lead, which is used under the following exemption: Lead in solders to complete a viable electrical connection between semiconductor die and carrier within integrated circuit Flip Chip packages.

Where the part is declared to meet RoHS requirements, it has been verified to be in conformance with 2002/95/EC as we currently understand the requirements. Intel has systems in place to verify conformance with all applicable environmental requirements and to the best of our knowledge the information is true and correct.

LEVEL A MATERIALS AND SUBSTANCES

Materials from Annex A of the EIA/EICTA/JGPSSI Material Composition Declaration Guide and listed in the table below are not contained in this product in quantities above the threshold level for these materials as stated in the EIA/EICTA/JGPSSI Material Composition Declaration Guide, nor intentionally added to this product.

Asbestos	Mercury / Mercury Compounds	Polychlorinated Naphthalenes
Azo colorants	Ozone Depleting Substances	Radioactive Substances
Cadmium / Cadmium Compounds	Polybrominated Biphenyls (PBBs)	Shortchain Chlorinated Paraffins
Hexavalent Chromium	Polybrominated Diphenylethers (PBDEs)	Tributyl Tin (TBT) and Triphenyl Tin (TPT)
Hexavalent Chromium Compounds	Polychlorinated Biphenyls (PCBs)	Tributyl Tin Oxide (TBTO)

If this product contains lead (Pb) above the threshold limit of 1000 ppm, the concentration, location and use for this product are listed below.

	Description of Use	Location in Product	Material Concentration (ppm)
Lead/Lead Compounds	C4 die bump/substrate solder	FLI	3540

LEVEL B MATERIALS AND SUBSTANCES

Antimony/Antimony Compounds	Bismuth/Bismuth Compounds	Phthalates
Arsenic/Arsenic Compounds	Brominated Flame Retardants	Selenium/Selenium Compounds
Beryllium/Beryllium Compounds	Nickel/Nickel Compounds	Vinyl Chloride Polymer (PVC)

If this product contains materials listed in Annex B of the EIA/EICTA/JGPSSI Material Composition Declaration Guide above the threshold level of 1000 ppm, those materials/substances are listed below.

	Description of Use	Location in Product	Material Concentration (ppm)
Brominated Flame Retardant	Flame retardant	Substrate	16400
Nickel	Plating	Substrate	3010

COMMENTS

1. The data on Level A and B materials and substances are based on analytical testing of the following package: FCBGA2 479, Product Code Name NK80530KZ933512S L7T3. Individual unit test results may vary due to differences in production and /or sensitivities of analytical testing methods. Data shown on this MDDS reflect part-level testing intended to validate Intel's RoHS compliance systems. Intel's certification of RoHS compliance at the homogenous material level is based on Supplier Declarations of Conformance.

2. This data sheet is based on the product specified and other packages are assumed to be similar.

3. Data in parts per million (ppm) can be used to estimate content for other packages assumed to be similar.

4. Material mass can be estimated by multiplying concentration (ppm) by product weight.

5. The remainder of this package consists of non-reportable metals (e.g., tin, iron, etc), epoxy resin and other non-metal materials.

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Material Declaration Data Sheet

FCBGA3
 Flip Chip Ball Grid Array3
 PinCount: 1202
 Pb Free Product: Yes-Second Level Interconnect

Product Weight (grams): 4.3
 Manufacturer: Intel Corporation
 Revision Date: 4/19/2006

Restrictions on Hazardous Substances (RoHS) Compliance

RoHS Definition

- * Quantity limit of 0.1% by mass (1000 PPM) of homogeneous material for: Lead (Pb), Mercury, Hexavalent Chromium, Polybrominated Biphenyls (PBB), Polybrominated Diphenyl Ethers (PBDE)
- * Quantity limit of 0.01% by mass (100 PPM) of homogeneous material for: Cadmium

Intel understands RoHS requires: Lead and other materials banned in RoHS Directive are either (1) below all applicable substance thresholds as defined by the EU or (2) an approved/pending exemption applies. (Note: RoHS implementation details are not fully defined and may change.)

RoHS Declaration

* The part does not contain RoHS restricted substances per the definition above except lead, which is used under the following exemption: Lead in solders to complete a viable electrical connection between semiconductor die and carrier within integrated circuit Flip Chip packages.

Where the part is declared to meet RoHS requirements, it has been verified to be in conformance with 2002/95/EC as we currently understand the requirements. Intel has systems in place to verify conformance with all applicable environmental requirements and to the best of our knowledge the information is true and correct.

LEVEL A MATERIALS AND SUBSTANCES

Materials from Annex A of the EIA/EICTA/JGPSSI Material Composition Declaration Guide and listed in the table below are not contained in this product in quantities above the threshold level for these materials as stated in the EIA/EICTA/JGPSSI Material Composition Declaration Guide, nor intentionally added to this product.

Asbestos	Mercury / Mercury Compounds	Polychlorinated Naphthalenes
Azo colorants	Ozone Depleting Substances	Radioactive Substances
Cadmium / Cadmium Compounds	Polybrominated Biphenyls (PBBs)	Shortchain Chlorinated Paraffins
Hexavalent Chromium	Polybrominated Diphenylethers (PBDEs)	Tributyl Tin (TBT) and Triphenyl Tin (TPT)
Hexavalent Chromium Compounds	Polychlorinated Biphenyls (PCBs)	Tributyl Tin Oxide (TBTO)

If this product contains lead (Pb) above the threshold limit of 1000 ppm, the concentration, location and use for this product are listed below.

	Description of Use	Location in Product	Material Concentration (ppm)
Lead/Lead Compounds	C4 die bump/substrate solder	FLI	3250

LEVEL B MATERIALS AND SUBSTANCES

Antimony/Antimony Compounds	Bismuth/Bismuth Compounds	Phthalates
Arsenic/Arsenic Compounds	Brominated Flame Retardants	Selenium/Selenium Compounds
Beryllium/Beryllium Compounds	Nickel/Nickel Compounds	Vinyl Chloride Polymer (PVC)

If this product contains materials listed in Annex B of the EIA/EICTA/JGPSSI Material Composition Declaration Guide above the threshold level of 1000 ppm, those materials/substances are listed below.

	Description of Use	Location in Product	Material Concentration (ppm)
Brominated Flame Retardant	Flame retardant	Substrate	23800
Nickel	Plating	Substrate	6320

COMMENTS

1. The data on Level A and B materials and substances are based on analytical testing of the following package: FCBGA3 1202, Product Code Name QG82945G. Individual unit test results may vary due to differences in production and /or sensitivities of analytical testing methods. Data shown on this MDDS reflect part-level testing intended to validate Intel's RoHS compliance systems. Intel's certification of RoHS compliance at the homogenous material level is based on Supplier Declarations of Conformance.

2. This data sheet is based on the product specified and other packages are assumed to be similar.
3. Data in parts per million (ppm) can be used to estimate content for other packages assumed to be similar.
4. Material mass can be estimated by multiplying concentration (ppm) by product weight.
5. The remainder of this package consists of non-reportable metals (e.g., tin, iron, etc), epoxy resin and other non-metal materials.

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Material Declaration Data Sheet

FCBGA3
 Flip Chip Ball Grid Array3
 PinCount: 1210
 Pb Free Product: Yes-Second Level Interconnect

Product Weight (grams): 5.2
 Manufacturer: Intel Corporation
 Revision Date: 4/30/2006

Restrictions on Hazardous Substances (RoHS) Compliance

RoHS Definition

- * Quantity limit of 0.1% by mass (1000 PPM) of homogeneous material for: Lead (Pb), Mercury, Hexavalent Chromium, Polybrominated Biphenyls (PBB), Polybrominated Diphenyl Ethers (PBDE)
- * Quantity limit of 0.01% by mass (100 PPM) of homogeneous material for: Cadmium

Intel understands RoHS requires: Lead and other materials banned in RoHS Directive are either (1) below all applicable substance thresholds as defined by the EU or (2) an approved/pending exemption applies. (Note: RoHS implementation details are not fully defined and may change.)

RoHS Declaration

* The part does not contain RoHS restricted substances per the definition above except lead, which is used under the following exemption: Lead in solders to complete a viable electrical connection between semiconductor die and carrier within integrated circuit Flip Chip packages.

Where the part is declared to meet RoHS requirements, it has been verified to be in conformance with 2002/95/EC as we currently understand the requirements. Intel has systems in place to verify conformance with all applicable environmental requirements and to the best of our knowledge the information is true and correct.

LEVEL A MATERIALS AND SUBSTANCES

Materials from Annex A of the EIA/EICTA/JGPSSI Material Composition Declaration Guide and listed in the table below are not contained in this product in quantities above the threshold level for these materials as stated in the EIA/EICTA/JGPSSI Material Composition Declaration Guide, nor intentionally added to this product.

Asbestos	Mercury / Mercury Compounds	Polychlorinated Naphthalenes
Azo colorants	Ozone Depleting Substances	Radioactive Substances
Cadmium / Cadmium Compounds	Polybrominated Biphenyls (PBBs)	Shortchain Chlorinated Paraffins
Hexavalent Chromium	Polybrominated Diphenylethers (PBDEs)	Tributyl Tin (TBT) and Triphenyl Tin (TPT)
Hexavalent Chromium Compounds	Polychlorinated Biphenyls (PCBs)	Tributyl Tin Oxide (TBTO)

If this product contains lead (Pb) above the threshold limit of 1000 ppm, the concentration, location and use for this product are listed below.

	Description of Use	Location in Product	Material Concentration (ppm)
Lead/Lead Compounds	C4 die bump/substrate solder	FLI	3310

LEVEL B MATERIALS AND SUBSTANCES

Antimony/Antimony Compounds	Bismuth/Bismuth Compounds	Phthalates
Arsenic/Arsenic Compounds	Brominated Flame Retardants	Selenium/Selenium Compounds
Beryllium/Beryllium Compounds	Nickel/Nickel Compounds	Vinyl Chloride Polymer (PVC)

If this product contains materials listed in Annex B of the EIA/EICTA/JGPSSI Material Composition Declaration Guide above the threshold level of 1000 ppm, those materials/substances are listed below.

	Description of Use	Location in Product	Material Concentration (ppm)
Brominated Flame Retardant	Flame retardant	Substrate	15200
Nickel	Plating	Substrate	3950

COMMENTS

1. The data on Level A and B materials and substances are based on analytical testing of the following package: FCBGA3 1210, Product Code Name QG82915GV (37.5mm x 37.5mm). Individual unit test results may vary due to differences in production and /or sensitivities of analytical testing methods. Data shown on this MDDS reflect part-level testing intended to validate Intel's RoHS compliance systems. Intel's certification of RoHS compliance at the homogenous material level is based on Supplier Declarations of Conformance.

2. This data sheet is based on the product specified and other packages are assumed to be similar.

3. Data in parts per million (ppm) can be used to estimate content for other packages assumed to be similar.

4. Material mass can be estimated by multiplying concentration (ppm) by product weight.

5. The remainder of this package consists of non-reportable metals (e.g., tin, iron, etc), epoxy resin and other non-metal materials.

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Material Declaration Data Sheet

FCBGA3
 Flip Chip Ball Grid Array3
 PinCount: 1257
 Pb Free Product: Yes-Second Level Interconnect

Product Weight (grams): 5.3
 Manufacturer: Intel Corporation
 Revision Date: 4/30/2006

Restrictions on Hazardous Substances (RoHS) Compliance

RoHS Definition

- * Quantity limit of 0.1% by mass (1000 PPM) of homogeneous material for: Lead (Pb), Mercury, Hexavalent Chromium, Polybrominated Biphenyls (PBB), Polybrominated Diphenyl Ethers (PBDE)
- * Quantity limit of 0.01% by mass (100 PPM) of homogeneous material for: Cadmium

Intel understands RoHS requires: Lead and other materials banned in RoHS Directive are either (1) below all applicable substance thresholds as defined by the EU or (2) an approved/pending exemption applies. (Note: RoHS implementation details are not fully defined and may change.)

RoHS Declaration

* The part does not contain RoHS restricted substances per the definition above except lead, which is used under the following exemption: Lead in solders to complete a viable electrical connection between semiconductor die and carrier within integrated circuit Flip Chip packages.

Where the part is declared to meet RoHS requirements, it has been verified to be in conformance with 2002/95/EC as we currently understand the requirements. Intel has systems in place to verify conformance with all applicable environmental requirements and to the best of our knowledge the information is true and correct.

LEVEL A MATERIALS AND SUBSTANCES

Materials from Annex A of the EIA/EICTA/JGPSSI Material Composition Declaration Guide and listed in the table below are not contained in this product in quantities above the threshold level for these materials as stated in the EIA/EICTA/JGPSSI Material Composition Declaration Guide, nor intentionally added to this product.

Asbestos	Mercury / Mercury Compounds	Polychlorinated Naphthalenes
Azo colorants	Ozone Depleting Substances	Radioactive Substances
Cadmium / Cadmium Compounds	Polybrominated Biphenyls (PBBs)	Shortchain Chlorinated Paraffins
Hexavalent Chromium	Polybrominated Diphenylethers (PBDEs)	Tributyl Tin (TBT) and Triphenyl Tin (TPT)
Hexavalent Chromium Compounds	Polychlorinated Biphenyls (PCBs)	Tributyl Tin Oxide (TBTO)

If this product contains lead (Pb) above the threshold limit of 1000 ppm, the concentration, location and use for this product are listed below.

	Description of Use	Location in Product	Material Concentration (ppm)
Lead/Lead Compounds	C4 die bump/substrate solder	FLI	3100

LEVEL B MATERIALS AND SUBSTANCES

Antimony/Antimony Compounds	Bismuth/Bismuth Compounds	Phthalates
Arsenic/Arsenic Compounds	Brominated Flame Retardants	Selenium/Selenium Compounds
Beryllium/Beryllium Compounds	Nickel/Nickel Compounds	Vinyl Chloride Polymer (PVC)

If this product contains materials listed in Annex B of the EIA/EICTA/JGPSSI Material Composition Declaration Guide above the threshold level of 1000 ppm, those materials/substances are listed below.

	Description of Use	Location in Product	Material Concentration (ppm)
Brominated Flame Retardant	Flame retardant	Substrate	13400
Nickel	Plating	Substrate	3610

COMMENTS

1. The data on Level A and B materials and substances are based on analytical testing of the following package: FCBGA3 1257, Product Code Name QG82915P (37.5mm x 40mm). Individual unit test results may vary due to differences in production and /or sensitivities of analytical testing methods. Data shown on this MDDS reflect part-level testing intended to validate Intel's RoHS compliance systems. Intel's certification of RoHS compliance at the homogenous material level is based on Supplier Declarations of Conformance.

2. This data sheet is based on the product specified and other packages are assumed to be similar.

3. Data in parts per million (ppm) can be used to estimate content for other packages assumed to be similar.

4. Material mass can be estimated by multiplying concentration (ppm) by product weight.

5. The remainder of this package consists of non-reportable metals (e.g., tin, iron, etc), epoxy resin and other non-metal materials.

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Material Declaration Data Sheet

FCBGA3
 Flip Chip Ball Grid Array3
 PinCount: 1284
 Pb Free Product: Yes-Second Level Interconnect

Product Weight (grams): 6.8
 Manufacturer: Intel Corporation
 Revision Date: 4/30/2006

Restrictions on Hazardous Substances (RoHS) Compliance

RoHS Definition

- * Quantity limit of 0.1% by mass (1000 PPM) of homogeneous material for: Lead (Pb), Mercury, Hexavalent Chromium, Polybrominated Biphenyls (PBB), Polybrominated Diphenyl Ethers (PBDE)
- * Quantity limit of 0.01% by mass (100 PPM) of homogeneous material for: Cadmium

Intel understands RoHS requires: Lead and other materials banned in RoHS Directive are either (1) below all applicable substance thresholds as defined by the EU or (2) an approved/pending exemption applies. (Note: RoHS implementation details are not fully defined and may change.)

RoHS Declaration

* The part does not contain RoHS restricted substances per the definition above except lead, which is used under the following exemption: Lead in solders to complete a viable electrical connection between semiconductor die and carrier within integrated circuit Flip Chip packages.

Where the part is declared to meet RoHS requirements, it has been verified to be in conformance with 2002/95/EC as we currently understand the requirements. Intel has systems in place to verify conformance with all applicable environmental requirements and to the best of our knowledge the information is true and correct.

LEVEL A MATERIALS AND SUBSTANCES

Materials from Annex A of the EIA/EICTA/JGPSSI Material Composition Declaration Guide and listed in the table below are not contained in this product in quantities above the threshold level for these materials as stated in the EIA/EICTA/JGPSSI Material Composition Declaration Guide, nor intentionally added to this product.

Asbestos	Mercury / Mercury Compounds	Polychlorinated Naphthalenes
Azo colorants	Ozone Depleting Substances	Radioactive Substances
Cadmium / Cadmium Compounds	Polybrominated Biphenyls (PBBs)	Shortchain Chlorinated Paraffins
Hexavalent Chromium	Polybrominated Diphenylethers (PBDEs)	Tributyl Tin (TBT) and Triphenyl Tin (TPT)
Hexavalent Chromium Compounds	Polychlorinated Biphenyls (PCBs)	Tributyl Tin Oxide (TBTO)

If this product contains lead (Pb) above the threshold limit of 1000 ppm, the concentration, location and use for this product are listed below.

	Description of Use	Location in Product	Material Concentration (ppm)
Lead/Lead Compounds	C4 die bump/substrate solder	FLI	2980

LEVEL B MATERIALS AND SUBSTANCES

Antimony/Antimony Compounds	Bismuth/Bismuth Compounds	Phthalates
Arsenic/Arsenic Compounds	Brominated Flame Retardants	Selenium/Selenium Compounds
Beryllium/Beryllium Compounds	Nickel/Nickel Compounds	Vinyl Chloride Polymer (PVC)

If this product contains materials listed in Annex B of the EIA/EICTA/JGPSSI Material Composition Declaration Guide above the threshold level of 1000 ppm, those materials/substances are listed below.

	Description of Use	Location in Product	Material Concentration (ppm)
Brominated Flame Retardant	Flame retardant	Substrate	16000
Nickel	Plating	Substrate	4230

COMMENTS

1. The data on Level A and B materials and substances are based on analytical testing of the following package: FCBGA3 1284, Product Code Name QG80003ES2 (40mm x 40mm). Individual unit test results may vary due to differences in production and /or sensitivities of analytical testing methods. Data shown on this MDDS reflect part-level testing intended to validate Intel's RoHS compliance systems. Intel's certification of RoHS compliance at the homogenous material level is based on Supplier Declarations of Conformance.

2. This data sheet is based on the product specified and other packages are assumed to be similar.

3. Data in parts per million (ppm) can be used to estimate content for other packages assumed to be similar.

4. Material mass can be estimated by multiplying concentration (ppm) by product weight.

5. The remainder of this package consists of non-reportable metals (e.g., tin, iron, etc), epoxy resin and other non-metal materials.

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Material Declaration Data Sheet

FCBGA3
 Flip Chip Ball Grid Array3
 PinCount: 1432
 Pb Free Product: Yes-Second Level Interconnect

Product Weight (grams): 30.0
 Manufacturer: Intel Corporation
 Revision Date: 4/27/2006

Restrictions on Hazardous Substances (RoHS) Compliance

RoHS Definition

- * Quantity limit of 0.1% by mass (1000 PPM) of homogeneous material for: Lead (Pb), Mercury, Hexavalent Chromium, Polybrominated Biphenyls (PBB), Polybrominated Diphenyl Ethers (PBDE)
- * Quantity limit of 0.01% by mass (100 PPM) of homogeneous material for: Cadmium

Intel understands RoHS requires: Lead and other materials banned in RoHS Directive are either (1) below all applicable substance thresholds as defined by the EU or (2) an approved/pending exemption applies. (Note: RoHS implementation details are not fully defined and may change.)

RoHS Declaration

* The part does not contain RoHS restricted substances per the definition above except lead, which is used under the following exemption: Lead in solders to complete a viable electrical connection between semiconductor die and carrier within integrated circuit Flip Chip packages.

Where the part is declared to meet RoHS requirements, it has been verified to be in conformance with 2002/95/EC as we currently understand the requirements. Intel has systems in place to verify conformance with all applicable environmental requirements and to the best of our knowledge the information is true and correct.

LEVEL A MATERIALS AND SUBSTANCES

Materials from Annex A of the EIA/EICTA/JGPSSI Material Composition Declaration Guide and listed in the table below are not contained in this product in quantities above the threshold level for these materials as stated in the EIA/EICTA/JGPSSI Material Composition Declaration Guide, nor intentionally added to this product.

Asbestos	Mercury / Mercury Compounds	Polychlorinated Naphthalenes
Azo colorants	Ozone Depleting Substances	Radioactive Substances
Cadmium / Cadmium Compounds	Polybrominated Biphenyls (PBBs)	Shortchain Chlorinated Paraffins
Hexavalent Chromium	Polybrominated Diphenylethers (PBDEs)	Tributyl Tin (TBT) and Triphenyl Tin (TPT)
Hexavalent Chromium Compounds	Polychlorinated Biphenyls (PCBs)	Tributyl Tin Oxide (TBTO)

If this product contains lead (Pb) above the threshold limit of 1000 ppm, the concentration, location and use for this product are listed below.

	Description of Use	Location in Product	Material Concentration (ppm)
Lead/Lead Compounds	C4 die bump/substrate solder	FLI	1350

LEVEL B MATERIALS AND SUBSTANCES

Antimony/Antimony Compounds	Bismuth/Bismuth Compounds	Phthalates
Arsenic/Arsenic Compounds	Brominated Flame Retardants	Selenium/Selenium Compounds
Beryllium/Beryllium Compounds	Nickel/Nickel Compounds	Vinyl Chloride Polymer (PVC)

If this product contains materials listed in Annex B of the EIA/EICTA/JGPSSI Material Composition Declaration Guide above the threshold level of 1000 ppm, those materials/substances are listed below.

	Description of Use	Location in Product	Material Concentration (ppm)
Brominated Flame Retardant	Flame retardant	Substrate	3840
Nickel	Plating	Substrate	3850

COMMENTS

1. The data on Level A and B materials and substances are based on analytical testing of the following package: FCBGA3 1432, Product Code Name QG82005MCH (42.5 x 42.5 w IHS). Individual unit test results may vary due to differences in production and /or sensitivities of analytical testing methods. Data shown on this MDDS reflect part-level testing intended to validate Intel's RoHS compliance systems. Intel's certification of RoHS compliance at the homogenous material level is based on Supplier Declarations of Conformance.

2. This data sheet is based on the product specified and other packages are assumed to be similar.

3. Data in parts per million (ppm) can be used to estimate content for other packages assumed to be similar.

4. Material mass can be estimated by multiplying concentration (ppm) by product weight.

5. The remainder of this package consists of non-reportable metals (e.g., tin, iron, etc), epoxy resin and other non-metal materials.

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Material Declaration Data Sheet

FCBGA3
 Flip Chip Ball Grid Array3
 PinCount: 1466
 Pb Free Product: Yes-Second Level Interconnect

Product Weight (grams): 4.9
 Manufacturer: Intel Corporation
 Revision Date: 4/19/2006

Restrictions on Hazardous Substances (RoHS) Compliance

RoHS Definition

- * Quantity limit of 0.1% by mass (1000 PPM) of homogeneous material for: Lead (Pb), Mercury, Hexavalent Chromium, Polybrominated Biphenyls (PBB), Polybrominated Diphenyl Ethers (PBDE)
- * Quantity limit of 0.01% by mass (100 PPM) of homogeneous material for: Cadmium

Intel understands RoHS requires: Lead and other materials banned in RoHS Directive are either (1) below all applicable substance thresholds as defined by the EU or (2) an approved/pending exemption applies. (Note: RoHS implementation details are not fully defined and may change.)

RoHS Declaration

* The part does not contain RoHS restricted substances per the definition above except lead, which is used under the following exemption: Lead in solders to complete a viable electrical connection between semiconductor die and carrier within integrated circuit Flip Chip packages.

Where the part is declared to meet RoHS requirements, it has been verified to be in conformance with 2002/95/EC as we currently understand the requirements. Intel has systems in place to verify conformance with all applicable environmental requirements and to the best of our knowledge the information is true and correct.

LEVEL A MATERIALS AND SUBSTANCES

Materials from Annex A of the EIA/EICTA/JGPSSI Material Composition Declaration Guide and listed in the table below are not contained in this product in quantities above the threshold level for these materials as stated in the EIA/EICTA/JGPSSI Material Composition Declaration Guide, nor intentionally added to this product.

Asbestos	Mercury / Mercury Compounds	Polychlorinated Naphthalenes
Azo colorants	Ozone Depleting Substances	Radioactive Substances
Cadmium / Cadmium Compounds	Polybrominated Biphenyls (PBBs)	Shortchain Chlorinated Paraffins
Hexavalent Chromium	Polybrominated Diphenylethers (PBDEs)	Tributyl Tin (TBT) and Triphenyl Tin (TPT)
Hexavalent Chromium Compounds	Polychlorinated Biphenyls (PCBs)	Tributyl Tin Oxide (TBTO)

If this product contains lead (Pb) above the threshold limit of 1000 ppm, the concentration, location and use for this product are listed below.

	Description of Use	Location in Product	Material Concentration (ppm)
Lead/Lead Compounds	C4 die bump/substrate solder	FLI	1410

LEVEL B MATERIALS AND SUBSTANCES

Antimony/Antimony Compounds	Bismuth/Bismuth Compounds	Phthalates
Arsenic/Arsenic Compounds	Brominated Flame Retardants	Selenium/Selenium Compounds
Beryllium/Beryllium Compounds	Nickel/Nickel Compounds	Vinyl Chloride Polymer (PVC)

If this product contains materials listed in Annex B of the EIA/EICTA/JGPSSI Material Composition Declaration Guide above the threshold level of 1000 ppm, those materials/substances are listed below.

	Description of Use	Location in Product	Material Concentration (ppm)
Brominated Flame Retardant	Flame retardant	Substrate	21800
Nickel	Plating	Substrate	1550

COMMENTS

1. The data on Level A and B materials and substances are based on analytical testing of the following package: FCBGA3 1466, Product Code Name QG82945GM. Individual unit test results may vary due to differences in production and /or sensitivities of analytical testing methods. Data shown on this MDDS reflect part-level testing intended to validate Intel's RoHS compliance systems. Intel's certification of RoHS compliance at the homogenous material level is based on Supplier Declarations of Conformance.

2. This data sheet is based on the product specified and other packages are assumed to be similar.
3. Data in parts per million (ppm) can be used to estimate content for other packages assumed to be similar.
4. Material mass can be estimated by multiplying concentration (ppm) by product weight.
5. The remainder of this package consists of non-reportable metals (e.g., tin, iron, etc), epoxy resin and other non-metal materials.

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Material Declaration Data Sheet

FCBGA3
 Flip Chip Ball Grid Array3
 PinCount: 567
 Pb Free Product: Yes-Second Level Interconnect

Product Weight (grams): 4.0
 Manufacturer: Intel Corporation
 Revision Date: 4/30/2006

Restrictions on Hazardous Substances (RoHS) Compliance

RoHS Definition

- * Quantity limit of 0.1% by mass (1000 PPM) of homogeneous material for: Lead (Pb), Mercury, Hexavalent Chromium, Polybrominated Biphenyls (PBB), Polybrominated Diphenyl Ethers (PBDE)
- * Quantity limit of 0.01% by mass (100 PPM) of homogeneous material for: Cadmium

Intel understands RoHS requires: Lead and other materials banned in RoHS Directive are either (1) below all applicable substance thresholds as defined by the EU or (2) an approved/pending exemption applies. (Note: RoHS implementation details are not fully defined and may change.)

RoHS Declaration

* The part does not contain RoHS restricted substances per the definition above except lead, which is used under the following exemption: Lead in solders to complete a viable electrical connection between semiconductor die and carrier within integrated circuit Flip Chip packages.

Where the part is declared to meet RoHS requirements, it has been verified to be in conformance with 2002/95/EC as we currently understand the requirements. Intel has systems in place to verify conformance with all applicable environmental requirements and to the best of our knowledge the information is true and correct.

LEVEL A MATERIALS AND SUBSTANCES

Materials from Annex A of the EIA/EICTA/JGPSSI Material Composition Declaration Guide and listed in the table below are not contained in this product in quantities above the threshold level for these materials as stated in the EIA/EICTA/JGPSSI Material Composition Declaration Guide, nor intentionally added to this product.

Asbestos	Mercury / Mercury Compounds	Polychlorinated Naphthalenes
Azo colorants	Ozone Depleting Substances	Radioactive Substances
Cadmium / Cadmium Compounds	Polybrominated Biphenyls (PBBs)	Shortchain Chlorinated Paraffins
Hexavalent Chromium	Polybrominated Diphenylethers (PBDEs)	Tributyl Tin (TBT) and Triphenyl Tin (TPT)
Hexavalent Chromium Compounds	Polychlorinated Biphenyls (PCBs)	Tributyl Tin Oxide (TBTO)

If this product contains lead (Pb) above the threshold limit of 1000 ppm, the concentration, location and use for this product are listed below.

	Description of Use	Location in Product	Material Concentration (ppm)
Lead/Lead Compounds	C4 die bump/substrate solder	FLI	1690

LEVEL B MATERIALS AND SUBSTANCES

Antimony/Antimony Compounds	Bismuth/Bismuth Compounds	Phthalates
Arsenic/Arsenic Compounds	Brominated Flame Retardants	Selenium/Selenium Compounds
Beryllium/Beryllium Compounds	Nickel/Nickel Compounds	Vinyl Chloride Polymer (PVC)

If this product contains materials listed in Annex B of the EIA/EICTA/JGPSSI Material Composition Declaration Guide above the threshold level of 1000 ppm, those materials/substances are listed below.

	Description of Use	Location in Product	Material Concentration (ppm)
Brominated Flame Retardant	Flame retardant	Substrate	17200
Nickel	Plating	Substrate	4590

COMMENTS

1. The data on Level A and B materials and substances are based on analytical testing of the following package: FCBGA3 567, Product Code Name QG6700PXH; QG6702PXHV (31mm x 31mm). Individual unit test results may vary due to differences in production and /or sensitivities of analytical testing methods. Data shown on this MDDS reflect part-level testing intended to validate Intel's RoHS compliance systems. Intel's certification of RoHS compliance at the homogenous material level is based on Supplier Declarations of Conformance.

2. This data sheet is based on the product specified and other packages are assumed to be similar.

3. Data in parts per million (ppm) can be used to estimate content for other packages assumed to be similar.

4. Material mass can be estimated by multiplying concentration (ppm) by product weight.

5. The remainder of this package consists of non-reportable metals (e.g., tin, iron, etc), epoxy resin and other non-metal materials.

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Material Declaration Data Sheet

FCBGA3
 Flip Chip Ball Grid Array3
 PinCount: 655
 Pb Free Product: Yes-Second Level Interconnect

Product Weight (grams): 1.8
 Manufacturer: Intel Corporation
 Revision Date: 4/27/2006

Restrictions on Hazardous Substances (RoHS) Compliance

RoHS Definition

- * Quantity limit of 0.1% by mass (1000 PPM) of homogeneous material for: Lead (Pb), Mercury, Hexavalent Chromium, Polybrominated Biphenyls (PBB), Polybrominated Diphenyl Ethers (PBDE)
- * Quantity limit of 0.01% by mass (100 PPM) of homogeneous material for: Cadmium

Intel understands RoHS requires: Lead and other materials banned in RoHS Directive are either (1) below all applicable substance thresholds as defined by the EU or (2) an approved/pending exemption applies. (Note: RoHS implementation details are not fully defined and may change.)

RoHS Declaration

* The part does not contain RoHS restricted substances per the definition above except lead, which is used under the following exemption: Lead in solders to complete a viable electrical connection between semiconductor die and carrier within integrated circuit Flip Chip packages.

Where the part is declared to meet RoHS requirements, it has been verified to be in conformance with 2002/95/EC as we currently understand the requirements. Intel has systems in place to verify conformance with all applicable environmental requirements and to the best of our knowledge the information is true and correct.

LEVEL A MATERIALS AND SUBSTANCES

Materials from Annex A of the EIA/EICTA/JGPSSI Material Composition Declaration Guide and listed in the table below are not contained in this product in quantities above the threshold level for these materials as stated in the EIA/EICTA/JGPSSI Material Composition Declaration Guide, nor intentionally added to this product.

Asbestos	Mercury / Mercury Compounds	Polychlorinated Naphthalenes
Azo colorants	Ozone Depleting Substances	Radioactive Substances
Cadmium / Cadmium Compounds	Polybrominated Biphenyls (PBBs)	Shortchain Chlorinated Paraffins
Hexavalent Chromium	Polybrominated Diphenylethers (PBDEs)	Tributyl Tin (TBT) and Triphenyl Tin (TPT)
Hexavalent Chromium Compounds	Polychlorinated Biphenyls (PCBs)	Tributyl Tin Oxide (TBTO)

If this product contains lead (Pb) above the threshold limit of 1000 ppm, the concentration, location and use for this product are listed below.

	Description of Use	Location in Product	Material Concentration (ppm)
Lead/Lead Compounds	C4 die bump/substrate solder	FLI	3050

LEVEL B MATERIALS AND SUBSTANCES

Antimony/Antimony Compounds	Bismuth/Bismuth Compounds	Phthalates
Arsenic/Arsenic Compounds	Brominated Flame Retardants	Selenium/Selenium Compounds
Beryllium/Beryllium Compounds	Nickel/Nickel Compounds	Vinyl Chloride Polymer (PVC)

If this product contains materials listed in Annex B of the EIA/EICTA/JGPSSI Material Composition Declaration Guide above the threshold level of 1000 ppm, those materials/substances are listed below.

	Description of Use	Location in Product	Material Concentration (ppm)
Brominated Flame Retardant	Flame retardant	Substrate	11300
Nickel	Plating	Substrate	7190

COMMENTS

1. The data on Level A and B materials and substances are based on analytical testing of the following package: FCBGA3 655, Product Code Name QG82007AM (24.5mm x 19.5mm w IHS). Individual unit test results may vary due to differences in production and /or sensitivities of analytical testing methods. Data shown on this MDDS reflect part-level testing intended to validate Intel's RoHS compliance systems. Intel's certification of RoHS compliance at the homogenous material level is based on Supplier Declarations of Conformance.

2. This data sheet is based on the product specified and other packages are assumed to be similar.

3. Data in parts per million (ppm) can be used to estimate content for other packages assumed to be similar.

4. Material mass can be estimated by multiplying concentration (ppm) by product weight.

5. The remainder of this package consists of non-reportable metals (e.g., tin, iron, etc), epoxy resin and other non-metal materials.

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Material Declaration Data Sheet

FCBGA3
 Flip Chip Ball Grid Array3
 PinCount: 829
 Pb Free Product: Yes-Second Level Interconnect

Product Weight (grams): 6.3
 Manufacturer: Intel Corporation
 Revision Date: 4/30/2006

Restrictions on Hazardous Substances (RoHS) Compliance

RoHS Definition

- * Quantity limit of 0.1% by mass (1000 PPM) of homogeneous material for: Lead (Pb), Mercury, Hexavalent Chromium, Polybrominated Biphenyls (PBB), Polybrominated Diphenyl Ethers (PBDE)
- * Quantity limit of 0.01% by mass (100 PPM) of homogeneous material for: Cadmium

Intel understands RoHS requires: Lead and other materials banned in RoHS Directive are either (1) below all applicable substance thresholds as defined by the EU or (2) an approved/pending exemption applies. (Note: RoHS implementation details are not fully defined and may change.)

RoHS Declaration

* The part does not contain RoHS restricted substances per the definition above except lead, which is used under the following exemption: Lead in solders to complete a viable electrical connection between semiconductor die and carrier within integrated circuit Flip Chip packages.

Where the part is declared to meet RoHS requirements, it has been verified to be in conformance with 2002/95/EC as we currently understand the requirements. Intel has systems in place to verify conformance with all applicable environmental requirements and to the best of our knowledge the information is true and correct.

LEVEL A MATERIALS AND SUBSTANCES

Materials from Annex A of the EIA/EICTA/JGPSSI Material Composition Declaration Guide and listed in the table below are not contained in this product in quantities above the threshold level for these materials as stated in the EIA/EICTA/JGPSSI Material Composition Declaration Guide, nor intentionally added to this product.

Asbestos	Mercury / Mercury Compounds	Polychlorinated Naphthalenes
Azo colorants	Ozone Depleting Substances	Radioactive Substances
Cadmium / Cadmium Compounds	Polybrominated Biphenyls (PBBs)	Shortchain Chlorinated Paraffins
Hexavalent Chromium	Polybrominated Diphenylethers (PBDEs)	Tributyl Tin (TBT) and Triphenyl Tin (TPT)
Hexavalent Chromium Compounds	Polychlorinated Biphenyls (PCBs)	Tributyl Tin Oxide (TBTO)

If this product contains lead (Pb) above the threshold limit of 1000 ppm, the concentration, location and use for this product are listed below.

	Description of Use	Location in Product	Material Concentration (ppm)
Lead/Lead Compounds	C4 die bump/substrate solder	FLI	1870

LEVEL B MATERIALS AND SUBSTANCES

Antimony/Antimony Compounds	Bismuth/Bismuth Compounds	Phthalates
Arsenic/Arsenic Compounds	Brominated Flame Retardants	Selenium/Selenium Compounds
Beryllium/Beryllium Compounds	Nickel/Nickel Compounds	Vinyl Chloride Polymer (PVC)

If this product contains materials listed in Annex B of the EIA/EICTA/JGPSSI Material Composition Declaration Guide above the threshold level of 1000 ppm, those materials/substances are listed below.

	Description of Use	Location in Product	Material Concentration (ppm)
Brominated Flame Retardant	Flame retardant	Substrate	16600
Nickel	Plating	Substrate	4010

COMMENTS

1. The data on Level A and B materials and substances are based on analytical testing of the following package: FCBGA3 829, Product Code Name QG80331M (37.5mm x 37.5mm). Individual unit test results may vary due to differences in production and /or sensitivities of analytical testing methods. Data shown on this MDDS reflect part-level testing intended to validate Intel's RoHS compliance systems. Intel's certification of RoHS compliance at the homogenous material level is based on Supplier Declarations of Conformance.

2. This data sheet is based on the product specified and other packages are assumed to be similar.

3. Data in parts per million (ppm) can be used to estimate content for other packages assumed to be similar.

4. Material mass can be estimated by multiplying concentration (ppm) by product weight.

5. The remainder of this package consists of non-reportable metals (e.g., tin, iron, etc), epoxy resin and other non-metal materials.

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Material Declaration Data Sheet

FCBGA3
 Flip Chip Ball Grid Array3
 PinCount: 840
 Pb Free Product: Yes-Second Level Interconnect

Product Weight (grams): 2.8
 Manufacturer: Intel Corporation
 Revision Date: 4/30/2006

Restrictions on Hazardous Substances (RoHS) Compliance

RoHS Definition

- * Quantity limit of 0.1% by mass (1000 PPM) of homogeneous material for: Lead (Pb), Mercury, Hexavalent Chromium, Polybrominated Biphenyls (PBB), Polybrominated Diphenyl Ethers (PBDE)
- * Quantity limit of 0.01% by mass (100 PPM) of homogeneous material for: Cadmium

Intel understands RoHS requires: Lead and other materials banned in RoHS Directive are either (1) below all applicable substance thresholds as defined by the EU or (2) an approved/pending exemption applies. (Note: RoHS implementation details are not fully defined and may change.)

RoHS Declaration

* The part does not contain RoHS restricted substances per the definition above except lead, which is used under the following exemption: Lead in solders to complete a viable electrical connection between semiconductor die and carrier within integrated circuit Flip Chip packages.

Where the part is declared to meet RoHS requirements, it has been verified to be in conformance with 2002/95/EC as we currently understand the requirements. Intel has systems in place to verify conformance with all applicable environmental requirements and to the best of our knowledge the information is true and correct.

LEVEL A MATERIALS AND SUBSTANCES

Materials from Annex A of the EIA/EICTA/JGPSSI Material Composition Declaration Guide and listed in the table below are not contained in this product in quantities above the threshold level for these materials as stated in the EIA/EICTA/JGPSSI Material Composition Declaration Guide, nor intentionally added to this product.

Asbestos	Mercury / Mercury Compounds	Polychlorinated Naphthalenes
Azo colorants	Ozone Depleting Substances	Radioactive Substances
Cadmium / Cadmium Compounds	Polybrominated Biphenyls (PBBs)	Shortchain Chlorinated Paraffins
Hexavalent Chromium	Polybrominated Diphenylethers (PBDEs)	Tributyl Tin (TBT) and Triphenyl Tin (TPT)
Hexavalent Chromium Compounds	Polychlorinated Biphenyls (PCBs)	Tributyl Tin Oxide (TBTO)

If this product contains lead (Pb) above the threshold limit of 1000 ppm, the concentration, location and use for this product are listed below.

	Description of Use	Location in Product	Material Concentration (ppm)
Lead/Lead Compounds	C4 die bump/substrate solder	FLI	6230

LEVEL B MATERIALS AND SUBSTANCES

Antimony/Antimony Compounds	Bismuth/Bismuth Compounds	Phthalates
Arsenic/Arsenic Compounds	Brominated Flame Retardants	Selenium/Selenium Compounds
Beryllium/Beryllium Compounds	Nickel/Nickel Compounds	Vinyl Chloride Polymer (PVC)

If this product contains materials listed in Annex B of the EIA/EICTA/JGPSSI Material Composition Declaration Guide above the threshold level of 1000 ppm, those materials/substances are listed below.

	Description of Use	Location in Product	Material Concentration (ppm)
Brominated Flame Retardant	Flame retardant	Substrate	10800
Nickel	Plating	Substrate	3880

COMMENTS

1. The data on Level A and B materials and substances are based on analytical testing of the following package: FCBGA3 840, Product Code Name QG82915GMS (27mm x 27mm). Individual unit test results may vary due to differences in production and /or sensitivities of analytical testing methods. Data shown on this MDDS reflect part-level testing intended to validate Intel's RoHS compliance systems. Intel's certification of RoHS compliance at the homogenous material level is based on Supplier Declarations of Conformance.

2. This data sheet is based on the product specified and other packages are assumed to be similar.

3. Data in parts per million (ppm) can be used to estimate content for other packages assumed to be similar.

4. Material mass can be estimated by multiplying concentration (ppm) by product weight.

5. The remainder of this package consists of non-reportable metals (e.g., tin, iron, etc), epoxy resin and other non-metal materials.

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Material Declaration Data Sheet

FCBGA3
 Flip Chip Ball Grid Array3
 PinCount: 998
 Pb Free Product: Yes-Second Level Interconnect

Product Weight (grams): 3.0
 Manufacturer: Intel Corporation
 Revision Date: 4/30/2006

Restrictions on Hazardous Substances (RoHS) Compliance

RoHS Definition

- * Quantity limit of 0.1% by mass (1000 PPM) of homogeneous material for: Lead (Pb), Mercury, Hexavalent Chromium, Polybrominated Biphenyls (PBB), Polybrominated Diphenyl Ethers (PBDE)
- * Quantity limit of 0.01% by mass (100 PPM) of homogeneous material for: Cadmium

Intel understands RoHS requires: Lead and other materials banned in RoHS Directive are either (1) below all applicable substance thresholds as defined by the EU or (2) an approved/pending exemption applies. (Note: RoHS implementation details are not fully defined and may change.)

RoHS Declaration

* The part does not contain RoHS restricted substances per the definition above except lead, which is used under the following exemption: Lead in solders to complete a viable electrical connection between semiconductor die and carrier within integrated circuit Flip Chip packages.

Where the part is declared to meet RoHS requirements, it has been verified to be in conformance with 2002/95/EC as we currently understand the requirements. Intel has systems in place to verify conformance with all applicable environmental requirements and to the best of our knowledge the information is true and correct.

LEVEL A MATERIALS AND SUBSTANCES

Materials from Annex A of the EIA/EICTA/JGPSSI Material Composition Declaration Guide and listed in the table below are not contained in this product in quantities above the threshold level for these materials as stated in the EIA/EICTA/JGPSSI Material Composition Declaration Guide, nor intentionally added to this product.

Asbestos	Mercury / Mercury Compounds	Polychlorinated Naphthalenes
Azo colorants	Ozone Depleting Substances	Radioactive Substances
Cadmium / Cadmium Compounds	Polybrominated Biphenyls (PBBs)	Shortchain Chlorinated Paraffins
Hexavalent Chromium	Polybrominated Diphenylethers (PBDEs)	Tributyl Tin (TBT) and Triphenyl Tin (TPT)
Hexavalent Chromium Compounds	Polychlorinated Biphenyls (PCBs)	Tributyl Tin Oxide (TBTO)

If this product contains lead (Pb) above the threshold limit of 1000 ppm, the concentration, location and use for this product are listed below.

	Description of Use	Location in Product	Material Concentration (ppm)
Lead/Lead Compounds	C4 die bump/substrate solder	FLI	6230

LEVEL B MATERIALS AND SUBSTANCES

Antimony/Antimony Compounds	Bismuth/Bismuth Compounds	Phthalates
Arsenic/Arsenic Compounds	Brominated Flame Retardants	Selenium/Selenium Compounds
Beryllium/Beryllium Compounds	Nickel/Nickel Compounds	Vinyl Chloride Polymer (PVC)

If this product contains materials listed in Annex B of the EIA/EICTA/JGPSSI Material Composition Declaration Guide above the threshold level of 1000 ppm, those materials/substances are listed below.

	Description of Use	Location in Product	Material Concentration (ppm)
Brominated Flame Retardant	Flame retardant	Substrate	10800
Nickel	Plating	Substrate	3880

COMMENTS

1. The data on Level A and B materials and substances are based on analytical testing of the following package: FCBGA3 840, Product Code Name QG82945GMSS (27mm x 27mm). Individual unit test results may vary due to differences in production and /or sensitivities of analytical testing methods. Data shown on this MDDS reflect part-level testing intended to validate Intel's RoHS compliance systems. Intel's certification of RoHS compliance at the homogenous material level is based on Supplier Declarations of Conformance.

2. This data sheet is based on the product specified and other packages are assumed to be similar.

3. Data in parts per million (ppm) can be used to estimate content for other packages assumed to be similar.

4. Material mass can be estimated by multiplying concentration (ppm) by product weight.

5. The remainder of this package consists of non-reportable metals (e.g., tin, iron, etc), epoxy resin and other non-metal materials.

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Material Declaration Data Sheet

FCBGA4
 Flip Chip Ball Grid Array4
 PinCount: 479
 Pb Free Product: Yes-Second Level Interconnect

Product Weight (grams): 4.5
 Manufacturer: Intel Corporation
 Revision Date: 4/30/2006

Restrictions on Hazardous Substances (RoHS) Compliance

RoHS Definition

- * Quantity limit of 0.1% by mass (1000 PPM) of homogeneous material for: Lead (Pb), Mercury, Hexavalent Chromium, Polybrominated Biphenyls (PBB), Polybrominated Diphenyl Ethers (PBDE)
- * Quantity limit of 0.01% by mass (100 PPM) of homogeneous material for: Cadmium

Intel understands RoHS requires: Lead and other materials banned in RoHS Directive are either (1) below all applicable substance thresholds as defined by the EU or (2) an approved/pending exemption applies. (Note: RoHS implementation details are not fully defined and may change.)

RoHS Declaration

* The part does not contain RoHS restricted substances per the definition above except lead, which is used under the following exemption: Lead in solders to complete a viable electrical connection between semiconductor die and carrier within integrated circuit Flip Chip packages.

Where the part is declared to meet RoHS requirements, it has been verified to be in conformance with 2002/95/EC as we currently understand the requirements. Intel has systems in place to verify conformance with all applicable environmental requirements and to the best of our knowledge the information is true and correct.

LEVEL A MATERIALS AND SUBSTANCES

Materials from Annex A of the EIA/EICTA/JGPSSI Material Composition Declaration Guide and listed in the table below are not contained in this product in quantities above the threshold level for these materials as stated in the EIA/EICTA/JGPSSI Material Composition Declaration Guide, nor intentionally added to this product.

Asbestos	Mercury / Mercury Compounds	Polychlorinated Naphthalenes
Azo colorants	Ozone Depleting Substances	Radioactive Substances
Cadmium / Cadmium Compounds	Polybrominated Biphenyls (PBBs)	Shortchain Chlorinated Paraffins
Hexavalent Chromium	Polybrominated Diphenylethers (PBDEs)	Tributyl Tin (TBT) and Triphenyl Tin (TPT)
Hexavalent Chromium Compounds	Polychlorinated Biphenyls (PCBs)	Tributyl Tin Oxide (TBTO)

If this product contains lead (Pb) above the threshold limit of 1000 ppm, the concentration, location and use for this product are listed below.

	Description of Use	Location in Product	Material Concentration (ppm)
Lead/Lead Compounds	C4 die bump/substrate solder	FLI	1270

LEVEL B MATERIALS AND SUBSTANCES

Antimony/Antimony Compounds	Bismuth/Bismuth Compounds	Phthalates
Arsenic/Arsenic Compounds	Brominated Flame Retardants	Selenium/Selenium Compounds
Beryllium/Beryllium Compounds	Nickel/Nickel Compounds	Vinyl Chloride Polymer (PVC)

If this product contains materials listed in Annex B of the EIA/EICTA/JGPSSI Material Composition Declaration Guide above the threshold level of 1000 ppm, those materials/substances are listed below.

	Description of Use	Location in Product	Material Concentration (ppm)
Brominated Flame Retardant	Flame retardant	Substrate	13100
Nickel	Plating	Substrate	1900

COMMENTS

1. The data on Level A and B materials and substances are based on analytical testing of the following package: FCBGA4 479, Product Code Name LE80536 (35mm x 35mm). Individual unit test results may vary due to differences in production and /or sensitivities of analytical testing methods. Data shown on this MDDS reflect part-level testing intended to validate Intel's RoHS compliance systems. Intel's certification of RoHS compliance at the homogenous material level is based on Supplier Declarations of Conformance.

2. This data sheet is based on the product specified and other packages are assumed to be similar.

3. Data in parts per million (ppm) can be used to estimate content for other packages assumed to be similar.

4. Material mass can be estimated by multiplying concentration (ppm) by product weight.

5. The remainder of this package consists of non-reportable metals (e.g., tin, iron, etc), epoxy resin and other non-metal materials.

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Material Declaration Data Sheet

FCBGA5
 Flip Chip Ball Grid Array5
 PinCount: 1752
 Pb Free Product: Yes-Second Level Interconnect

Product Weight (grams): 29.6
 Manufacturer: Intel Corporation
 Revision Date: 4/27/2006

Restrictions on Hazardous Substances (RoHS) Compliance

RoHS Definition

- * Quantity limit of 0.1% by mass (1000 PPM) of homogeneous material for: Lead (Pb), Mercury, Hexavalent Chromium, Polybrominated Biphenyls (PBB), Polybrominated Diphenyl Ethers (PBDE)
- * Quantity limit of 0.01% by mass (100 PPM) of homogeneous material for: Cadmium

Intel understands RoHS requires: Lead and other materials banned in RoHS Directive are either (1) below all applicable substance thresholds as defined by the EU or (2) an approved/pending exemption applies. (Note: RoHS implementation details are not fully defined and may change.)

RoHS Declaration

* The part does not contain RoHS restricted substances per the definition above except lead, which is used under the following exemption: Lead in solders to complete a viable electrical connection between semiconductor die and carrier within integrated circuit Flip Chip packages.

Where the part is declared to meet RoHS requirements, it has been verified to be in conformance with 2002/95/EC as we currently understand the requirements. Intel has systems in place to verify conformance with all applicable environmental requirements and to the best of our knowledge the information is true and correct.

LEVEL A MATERIALS AND SUBSTANCES

Materials from Annex A of the EIA/EICTA/JGPSSI Material Composition Declaration Guide and listed in the table below are not contained in this product in quantities above the threshold level for these materials as stated in the EIA/EICTA/JGPSSI Material Composition Declaration Guide, nor intentionally added to this product.

Asbestos	Mercury / Mercury Compounds	Polychlorinated Naphthalenes
Azo colorants	Ozone Depleting Substances	Radioactive Substances
Cadmium / Cadmium Compounds	Polybrominated Biphenyls (PBBs)	Shortchain Chlorinated Paraffins
Hexavalent Chromium	Polybrominated Diphenylethers (PBDEs)	Tributyl Tin (TBT) and Triphenyl Tin (TPT)
Hexavalent Chromium Compounds	Polychlorinated Biphenyls (PCBs)	Tributyl Tin Oxide (TBTO)

If this product contains lead (Pb) above the threshold limit of 1000 ppm, the concentration, location and use for this product are listed below.

	Description of Use	Location in Product	Material Concentration (ppm)
Lead/Lead Compounds	C4 die bump/substrate solder	FLI	1440

LEVEL B MATERIALS AND SUBSTANCES

Antimony/Antimony Compounds	Bismuth/Bismuth Compounds	Phthalates
Arsenic/Arsenic Compounds	Brominated Flame Retardants	Selenium/Selenium Compounds
Beryllium/Beryllium Compounds	Nickel/Nickel Compounds	Vinyl Chloride Polymer (PVC)

If this product contains materials listed in Annex B of the EIA/EICTA/JGPSSI Material Composition Declaration Guide above the threshold level of 1000 ppm, those materials/substances are listed below.

	Description of Use	Location in Product	Material Concentration (ppm)
Brominated Flame Retardant	Flame retardant	Substrate	17900
Nickel	Plating	Substrate	2450

COMMENTS

1. The data on Level A and B materials and substances are based on analytical testing of the following package: FCBGA5 1752, Product Code Name WPIXP2350 (42mm x 42mm w IHS). Individual unit test results may vary due to differences in production and /or sensitivities of analytical testing methods. Data shown on this MDDS reflect part-level testing intended to validate Intel's RoHS compliance systems. Intel's certification of RoHS compliance at the homogenous material level is based on Supplier Declarations of Conformance.

2. This data sheet is based on the product specified and other packages are assumed to be similar.

3. Data in parts per million (ppm) can be used to estimate content for other packages assumed to be similar.

4. Material mass can be estimated by multiplying concentration (ppm) by product weight.

5. The remainder of this package consists of non-reportable metals (e.g., tin, iron, etc), epoxy resin and other non-metal materials.

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Material Declaration Data Sheet

FCBGA5
 Flip Chip Ball Grid Array5
 PinCount: 256
 Pb Free Product: Yes-Second Level Interconnect

Product Weight (grams): 0.7
 Manufacturer: Intel Corporation
 Revision Date: 4/30/2006

Restrictions on Hazardous Substances (RoHS) Compliance

RoHS Definition

- * Quantity limit of 0.1% by mass (1000 PPM) of homogeneous material for: Lead (Pb), Mercury, Hexavalent Chromium, Polybrominated Biphenyls (PBB), Polybrominated Diphenyl Ethers (PBDE)
- * Quantity limit of 0.01% by mass (100 PPM) of homogeneous material for: Cadmium

Intel understands RoHS requires: Lead and other materials banned in RoHS Directive are either (1) below all applicable substance thresholds as defined by the EU or (2) an approved/pending exemption applies. (Note: RoHS implementation details are not fully defined and may change.)

RoHS Declaration

* The part does not contain RoHS restricted substances per the definition above except lead, which is used under the following exemption: Lead in solders to complete a viable electrical connection between semiconductor die and carrier within integrated circuit Flip Chip packages.

Where the part is declared to meet RoHS requirements, it has been verified to be in conformance with 2002/95/EC as we currently understand the requirements. Intel has systems in place to verify conformance with all applicable environmental requirements and to the best of our knowledge the information is true and correct.

LEVEL A MATERIALS AND SUBSTANCES

Materials from Annex A of the EIA/EICTA/JGPSSI Material Composition Declaration Guide and listed in the table below are not contained in this product in quantities above the threshold level for these materials as stated in the EIA/EICTA/JGPSSI Material Composition Declaration Guide, nor intentionally added to this product.

Asbestos	Mercury / Mercury Compounds	Polychlorinated Naphthalenes
Azo colorants	Ozone Depleting Substances	Radioactive Substances
Cadmium / Cadmium Compounds	Polybrominated Biphenyls (PBBs)	Shortchain Chlorinated Paraffins
Hexavalent Chromium	Polybrominated Diphenylethers (PBDEs)	Tributyl Tin (TBT) and Triphenyl Tin (TPT)
Hexavalent Chromium Compounds	Polychlorinated Biphenyls (PCBs)	Tributyl Tin Oxide (TBTO)

If this product contains lead (Pb) above the threshold limit of 1000 ppm, the concentration, location and use for this product are listed below.

	Description of Use	Location in Product	Material Concentration (ppm)
Lead/Lead Compounds	C4 die bump/substrate solder	FLI	1630

LEVEL B MATERIALS AND SUBSTANCES

Antimony/Antimony Compounds	Bismuth/Bismuth Compounds	Phthalates
Arsenic/Arsenic Compounds	Brominated Flame Retardants	Selenium/Selenium Compounds
Beryllium/Beryllium Compounds	Nickel/Nickel Compounds	Vinyl Chloride Polymer (PVC)

If this product contains materials listed in Annex B of the EIA/EICTA/JGPSSI Material Composition Declaration Guide above the threshold level of 1000 ppm, those materials/substances are listed below.

	Description of Use	Location in Product	Material Concentration (ppm)
Brominated Flame Retardant	Flame retardant	Substrate	25500
Chromium, Hexavalent			< 1010
Nickel	Plating	Substrate	1540

COMMENTS

1. The data on Level A and B materials and substances are based on analytical testing of the following package: FCBGA5 256, Product Code Name JL82572 (17mm x 17mm). Individual unit test results may vary due to differences in production and /or sensitivities of analytical testing methods. Data shown on this MDDS reflect part-level testing intended to validate Intel's RoHS compliance systems. Intel's certification of RoHS compliance at the homogenous material level is based on Supplier Declarations of Conformance.

2. This data sheet is based on the product specified and other packages are assumed to be similar.

3. Data in parts per million (ppm) can be used to estimate content for other packages assumed to be similar.

4. Material mass can be estimated by multiplying concentration (ppm) by product weight.

5. The remainder of this package consists of non-reportable metals (e.g., tin, iron, etc), epoxy resin and other non-metal materials.

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Material Declaration Data Sheet

FCBGA6
 Flip Chip Ball Grid Array6
 PinCount: 479
 Pb Free Product: Yes-Second Level Interconnect

Product Weight (grams): 6.3
 Manufacturer: Intel Corporation
 Revision Date: 4/30/2006

Restrictions on Hazardous Substances (RoHS) Compliance

RoHS Definition

- * Quantity limit of 0.1% by mass (1000 PPM) of homogeneous material for: Lead (Pb), Mercury, Hexavalent Chromium, Polybrominated Biphenyls (PBB), Polybrominated Diphenyl Ethers (PBDE)
- * Quantity limit of 0.01% by mass (100 PPM) of homogeneous material for: Cadmium

Intel understands RoHS requires: Lead and other materials banned in RoHS Directive are either (1) below all applicable substance thresholds as defined by the EU or (2) an approved/pending exemption applies. (Note: RoHS implementation details are not fully defined and may change.)

RoHS Declaration

* The part does not contain RoHS restricted substances per the definition above except lead, which is used under the following exemption: Lead in solders to complete a viable electrical connection between semiconductor die and carrier within integrated circuit Flip Chip packages.

Where the part is declared to meet RoHS requirements, it has been verified to be in conformance with 2002/95/EC as we currently understand the requirements. Intel has systems in place to verify conformance with all applicable environmental requirements and to the best of our knowledge the information is true and correct.

LEVEL A MATERIALS AND SUBSTANCES

Materials from Annex A of the EIA/EICTA/JGPSSI Material Composition Declaration Guide and listed in the table below are not contained in this product in quantities above the threshold level for these materials as stated in the EIA/EICTA/JGPSSI Material Composition Declaration Guide, nor intentionally added to this product.

Asbestos	Mercury / Mercury Compounds	Polychlorinated Naphthalenes
Azo colorants	Ozone Depleting Substances	Radioactive Substances
Cadmium / Cadmium Compounds	Polybrominated Biphenyls (PBBs)	Shortchain Chlorinated Paraffins
Hexavalent Chromium	Polybrominated Diphenylethers (PBDEs)	Tributyl Tin (TBT) and Triphenyl Tin (TPT)
Hexavalent Chromium Compounds	Polychlorinated Biphenyls (PCBs)	Tributyl Tin Oxide (TBTO)

If this product contains lead (Pb) above the threshold limit of 1000 ppm, the concentration, location and use for this product are listed below.

	Description of Use	Location in Product	Material Concentration (ppm)
Lead/Lead Compounds			

LEVEL B MATERIALS AND SUBSTANCES

Antimony/Antimony Compounds	Bismuth/Bismuth Compounds	Phthalates
Arsenic/Arsenic Compounds	Brominated Flame Retardants	Selenium/Selenium Compounds
Beryllium/Beryllium Compounds	Nickel/Nickel Compounds	Vinyl Chloride Polymer (PVC)

If this product contains materials listed in Annex B of the EIA/EICTA/JGPSSI Material Composition Declaration Guide above the threshold level of 1000 ppm, those materials/substances are listed below.

	Description of Use	Location in Product	Material Concentration (ppm)
Brominated Flame Retardant	Flame Retardant	Substrate	8190
Nickel	Plating	Substrate	6020

COMMENTS

1. The data on Level A and B materials and substances are based on analytical testing of the following package: FCBGA6 479, Product Code Name LE80539LF (35mm x 35mm). Individual unit test results may vary due to differences in production and /or sensitivities of analytical testing methods. Data shown on this MDDS reflect part-level testing intended to validate Intel's RoHS compliance systems. Intel's certification of RoHS compliance at the homogenous material level is based on Supplier Declarations of Conformance.

2. This data sheet is based on the product specified and other packages are assumed to be similar.

3. Data in parts per million (ppm) can be used to estimate content for other packages assumed to be similar.

4. Material mass can be estimated by multiplying concentration (ppm) by product weight.

5. The remainder of this package consists of non-reportable metals (e.g., tin, iron, etc), epoxy resin and other non-metal materials.

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