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Intel® IXDP465 Development Platform

A comprehensive development environment to help speed designs with the Intel® IXP455, Intel® IXP460, and Intel® IXP465 network processors

Product Overview

The Intel® IXDP465 Development Platform is a flexible development system that enables rapid design, testing, and integration of a broad range of products based on the Intel® IXP455, Intel® IXP460, and Intel® IXP465 network processors. The platform's modular hardware architecture helps developers quickly build a solution that meets their application requirements, and helps enable OEMs to differentiate their products by easily integrating their own intellectual property.

Combined with operating system software and tools from Intel, the Intel® Communications Alliance, and other third-party providers, the Intel IXDP465 Development Platform forms the foundation of a total development environment. The platform's power and flexibility help developers and OEMs design and prototype a wide variety of communications and embedded networking products such as modular routers, security appliances, line cards for telecommunications infrastructure, industrial control and automation applications, interactive clients, test and instrumentation, RFID readers, and networked print imaging applications.

Product Highlights

- Provides a system-level test bed for prototyping and integration of designs using the Intel IXP455, Intel IXP460, and Intel IXP465 network processors

- Provides a modular platform including a baseboard, network processor subsystem, and optional modules for flexible I/O configuration
- Enables initial processor and system-level performance evaluation
- Supports integration of customers' operating systems and application stacks
- Includes hardware, software, development tools, application software, and documentation

Network Processor Overview

The single-chip design of the Intel IXP455, IXP460, and IXP465 network processors combines a high performance Intel XScale® processor with additional network processor engines (NPEs) to achieve wirespeed packet processing performance. The variety of built-in communications features support requirements for small-to-medium enterprise communications and embedded networking applications. Designed using Intel® 0.18-micron process technology, the Intel XScale processor delivers a high MIPS/power consumption ratio and provides ample processing headroom for value-added software features.

Hardware Platform

The Intel IXDP465 Development Platform is ideal for developing and verifying hardware and software used with the Intel IXP455, IXP460 or IXP465 network processors, providing easy access to the various

Figure 1: Intel® IXDP465 Development Platform Block Diagram
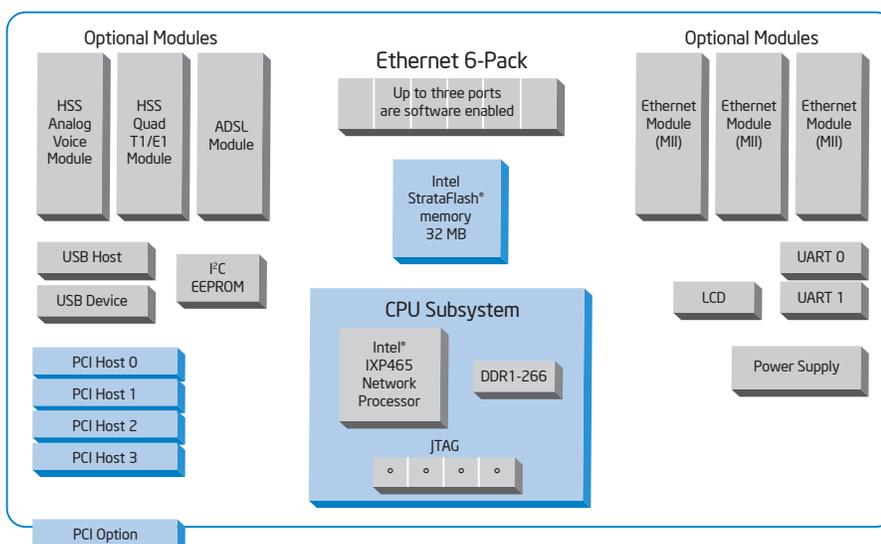
processor interfaces through independent connectors. Developers can use these interfaces to conduct rapid initial chip assessment, performance evaluation, prototyping, and product development, and to test value-added expansion cards before building their own solutions.

Hardware specifications for the Intel® IXDP465 Development Platform include:

- Baseboard:
  – Two USB connectors (one host, one device)
  – Two UART connectors
  – Four PCI host slots
  – One PCI option connector
  – I2C EEPROM
  – 32 MB Intel StrataFlash® memory
  – Six 10/100 Ethernet ports (via RJ45)[1]
  – LCD
  – Power supply
- CPU subsystem with socket for the Intel IXP455, IXP460, or IXP465 network processor, DDR1-266 SDRAM, and a JTAG connector
- One Ethernet MII[1] module
- Optional modules:
  – HSS[1] analog (4-FXS, 1-FXO) voice module
  – Two additional Ethernet MII[1] modules

Operating Systems, Tools, Software, and Driver Support

The extensive hardware capabilities of the NPEs within Intel® network processors are under the control of micro-coded algorithms accessed via application programming interfaces (APIs). The APIs are provided in the Intel® IXP400 software releases available on the Intel Web site. Customer applications configure and interact with the NPEs through the high-performance API layer running on the Intel XScale processor. Sample "codelets" demonstrate how to use each service or function provided by the processor library and underlying hardware.

To help speed time-to-market and reduce development costs, the IXDP465 Development Platform includes a set of software development tools for writing, assembling, debugging, optimizing, and verifying software (available at intel.com/go/networkprocessors and third-party Web sites). Developers using the development platform also have access to a wide selection of third-party tools, including compilers, linkers, debuggers, and board support packages.

The Wind River VxWorks* Board Support Package (BSP) and MontaVista Linux* Support Package (LSP) software releases include drivers for some system peripherals and expansion cards. (BSP and LSP are available through third parties.)

Operating systems supported:
- Wind River VxWorks
- MontaVista Linux

Development environments supported:
- Wind River VxWorks Developers Toolkit (VDT) 2.2.1
- Wind River Platform for Network Equipment (PNE) 2.1*
- MontaVista Linux Professional Edition 3.1
- Red Hat RedBoot* and Tool Chain v2.0

Available software:
- Intel IXP400 software releases
- BSP for VxWorks
- LSP for Linux

Intel® Communications Alliance

With Intel® development platforms, developers can design comprehensive systems combining products from Intel and third-party vendors to accelerate time-to-market and reduce development costs. For more information on third parties in the Intel Communications Alliance who support Intel network processors and their development environment, visit: www.intel.com/go/ica

Intel® Network Processors: intel.com/go/networkprocessors

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