

**FIC PA2011 PCI SYSTEM BOARD
BENCHMARKING REPORT**

Revision 2.3

Update: 18-MAR-1997



1.0 Introduction

To evaluate the PA-2011 performance and to ensure its compatibility with a complete range of the most popular operating systems and software applications, FIC Motherboard R&D Team conducted a comprehensive suite of benchmark tests on the board in a variety of hardware configurations, including a full selection of Intel Pentium, IBM/Cyrix 6x86 , AMD-K5/K6 , Intel P55C processors as well as EDO and Synchronous DRAM types. The performance of the board running some of the most popular VGA adapter cards was also tested.

In order to demonstrate realistic business application performance, Winstone 97 under Windows 95 was chosen as the primary benchmarking tool for FIC tests. Winstone 97 Version 1.0 was developed by the Ziff-Davis Publishing Company to provide a tool for accurate and realistic measurement of system performance of personal computers running popular business-oriented applications in the Microsoft Windows 95 and Windows NT 4.0 operating system environment.

System Tests Configuration :

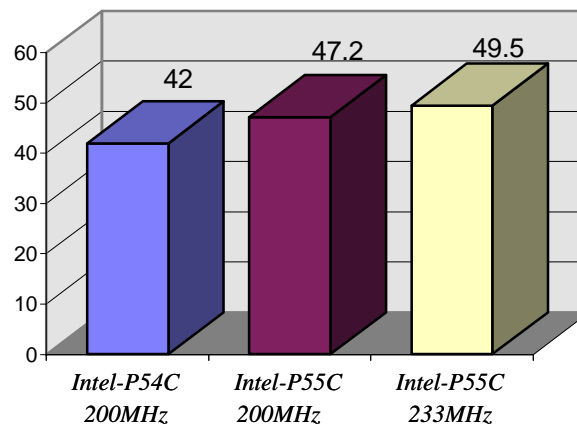
Main Board	FIC PA-2011
System Core Logic	VIA 82C590VP2 (595_3042F + 586A_3036H)
System BIOS	AMI BIOS Version 626CC12
VGA	Matrox Mystique 2MB SGRAM with VGA BIOS Version 1.40
VGA Driver	Matrox Mystique Windows 95 Driver Version 3.41 Matrox Mystique Windows NT 4.0 Driver Version 3.06
IDE Driver	VIA580 PCI Bus Master Driver V1.09
IDE HDD	IBM 6.4GB Ultra DMA33 IDE DHEA-36480
Operating System	Microsoft Windows 95 4.00.950b (OSR2) Microsoft Windows NT 4.0 Workstation (build in 1381)

2.0 Processor Benchmarks Performance Summary

a) Intel Pentium Processor Performance

The chart below illustrates the Winstone 97 under Windows 95 performance processor benchmark with the PA-2011 using different speed Intel Pentium processors. The following is a sample of the results using 512KB Pipeline Burst SRAM, 32MB SDRAM, with a Matrox Mystique, 2MB SGRAM PCI VGA card in 1024 x 768 x 256 colors, resolution refresh rate of 75Hz, small font.

PA-2011 Winstone 97 Pentium Performance Comparison Chart



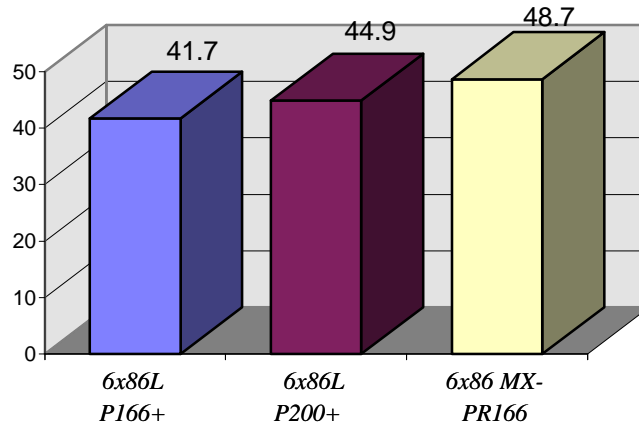
The table below provides more detailed benchmark testing data about the PA-2011 using different speed Intel Pentium processors. The board was configured with 512KB Pipeline Burst SRAM and 32MB SDRAM.

Benchmarks	Weighted Suite	Intel P54C 200MHz	Intel P55C 200MHz	Intel P55C 233MHz
<i>Winstone 97</i>	Business Winstone 97	42	47.2	49.5
	High End Winstone 97	18.1	20.4	21.8
<i>Winbench 97</i>	Business Disk WinMark 97	1250	1330	1350
	High End Disk Winmark97	4400	4790	4920
	CPUmark 16	366	415	452
	CPUmark 32	359	405	436
	Business Graphics WinMark 97	67.2	92.8	101
	High End Graphics WinMark 97	31.3	40.7	44.7

b) Cyrix 6x86 Processor Performance

The chart below illustrates the Winstone 97 under Windows 95 performance processor benchmark with the PA-2011 using different speed Cyrix/IBM processors. The board was configured with 512KB Pipeline Burst SRAM and 32MB SDRAM.

PA-2011 Winstone 97 Cryx/IBM Performance Comparison Chart



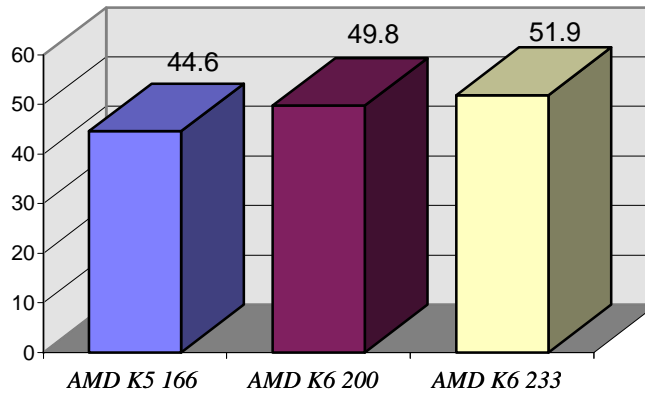
This table provides a detailed summary of PA-2011 benchmark performance using different speed Cyrix/IBM 6x86 processors. The board was configured with 512KB Pipeline Burst SRAM and 32MB SDRAM.

Benchmarks	Weighted Suite	Cryix/IBM 6x86L P166 ⁺	Cryix/IBM 6x86L P200 ⁺	Cryix 6x86 MX-PR166
Winstone 97	Business Winstone 97	41.7	44.9	48.7
	High End Winstone 97	16.3	17.7	19.2
Winbench 97	Business Disk WinMark 97	1240	1320	1390
	High End Disk Winmark97	4400	5140	5180
	CPUmark 16	320	369	356
	CPUmark 32	327	379	395
	Business Graphics WinMark 97	68.9	78.8	93.2
	High End Graphics WinMark 97	32.2	36.8	43

c) AMD-K5/K6 Processor Performance

The chart below illustrates the Winstone 97 under Windows 95 performance processor benchmark with the PA-2011 using different speed AMD-K5/K6 processors. The board was configured with 512KB Pipeline Burst SRAM and 32MB SDRAM

PA-2011 Winstone 97 AMD K5/K6 Performance Comparison Chart



This table summarizes the processor benchmark performance of the PA-2011 using different speed AMD-K5/K6 processors. The board was configured with 512KB Pipeline Burst SRAM and 32MB SDRAM.

Benchmarks	Weighted Suite	AMD	AMD	AMD
		K5 PR-166	K6 PR2-200	K6 PR2-233
<i>Winstone 97</i>	Business Winstone 97	44.6	49.8	51.9
	High End Winstone 97	19.1	20.7	21.7
<i>Winbench 97</i>	Business Disk WinMark 97	1440	1380	1390
	High End Disk Winmark97	5080	5170	5210
	CPUmark 16	317	402	451
	CPUmark 32	344	492	527
	Business Graphics WinMark 97	85.8	94.3	107
	High End Graphics WinMark 97	39.9	42.6	47.6

2.2 Memory Configurations

The table below provides more detailed measurements of the performance of the PA-2011 using the following different memory types : EDO RAM, SDRAM . The tests were conducted on a board featuring an Intel MMX 233MHz processor, 32MB Main Memory, and 512KB Pipeline Burst Cache.

Benchmarks	Weighted Suite	EDO	SDRAM
Winstone 97	Business Winstone 97	47.6	49.5
	High End Winstone 97	21	21.8
Winbench 97	Business Disk WinMark 97	1350	1360
	High End Disk Winmark97	4720	4920
	CPUmark 16	452	457
	CPUmark 32	436	439
	Business Graphics WinMark 97	99.8	101
	High End Graphics WinMark 97	42.8	44.7

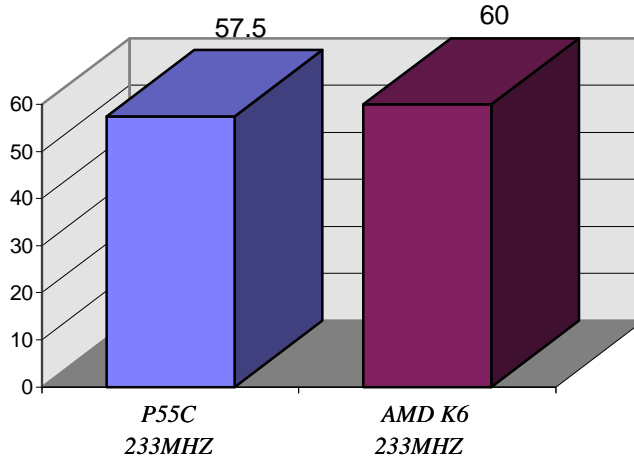
The table measurements of the performance of the PA-2011 using different memory sizes of 32MB and 64MB SDRAM. The tests were conducted on a board featuring an Intel MMX 233MHz processor, 512KB Pipeline Burst Cache.

Benchmarks	Weighted Suite	32MB SDRAM	64MB SDRAM
Winstone 97	Business Winstone 97	49.5	53.2
	High End Winstone 97	21.8	24.4
Winbench 97	Business Disk WinMark 97	1350	2400
	High End Disk Winmark97	4920	6770
	CPUmark 16	452	456
	CPUmark 32	436	454
	Business Graphics WinMark 97	101	104
	High End Graphics WinMark 97	44.7	45.4

3.0 Benchmarks Performance for Windows NT 4.0 :

The chart below illustrates the Winstone 97 under Windows NT 4.0 performance processor benchmark with the PA-2011 using Intel P55C-233MHZ and AMD-K6 233MHZprocessors. The board was configured with 512KB Pipeline Burst SRAM and 32MB SDRAM,with a Matrox Mystique 2MB SGRAM PCI VGA card in 1024 x 768 x 256 color resolution refresh rate of 75HZ. small font

PA-2011 Winstone 97 For NT4.0 Performance Comparison Chart



This table summarizes the processor benchmark performance of the PA-2011 . The board was configured with 512KB Pipeline Burst SRAM and 32MB SDRAM.

Benchmarks	Weighted Suite	Intel P55C 233MHz	AMD K5 PR2-233
Winstone 97	Business Winstone 97	57.5	60
	High End Winstone 97	19.4	20.3
Winbench 97	Business Disk WinMark 97	1010	977
	High End Disk Winmark97	2640	2660
	CPUmark 16	447	434
	CPUmark 32	455	532
	Business Graphics WinMark 97	91.6	98.9
	High End Graphics WinMark 97	34.2	40.2