FIC PA-2006 PCI SYSTEM BOARD BENCHMARKING REPORT
April 1997

Revision 3.0

1.0 Introduction

To evaluate the PA-2006 performance and to ensure its compatibility with a complete range of the most popular operating systems and software applications, FIC 's 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, Intel P55C and Pentium OverDrive processors as well as Fast Page Mode, 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's 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 operating system environment.
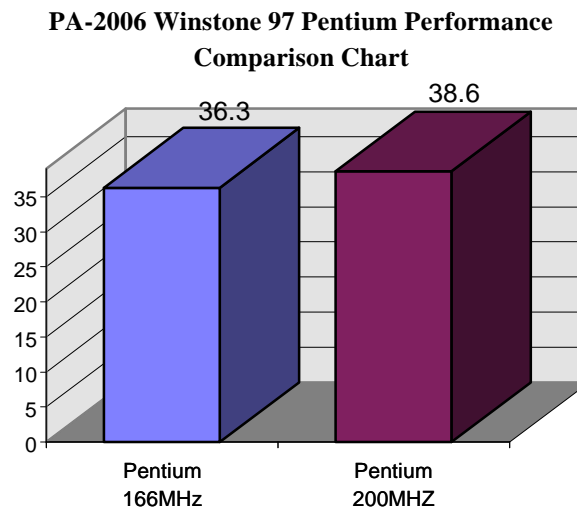
System Tests Configuration :

Main Board	FIC PA-2006 PCB Ver:2.1
System Core Logic	VIA 82C580VP (VT585_3035G + VT586_3028F)
System BIOS	Award BIOS Version 6.16J903
VGA	Matrox Mystique 2MB SGRAM
VGA Driver	Matrox Mystique Windows 95 Driver Version 3.20.55
IDE Driver	Windows 95 PCI Master Driver
IDE HDD	Quantum Fireball 2110 PIO Mode 4 or DMA mode 2 (TM-2110A)
Operating System	Microsoft Windows 95

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-2006 using different speed Intel Pentium processors. The following is a sample of the results using 256KB 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.

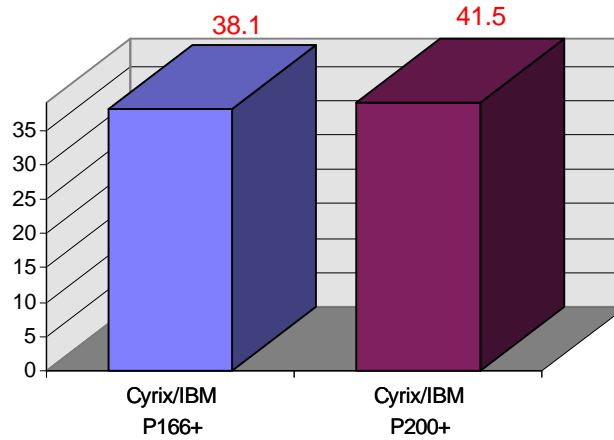**PA-2006 Winstone 97 Pentium Performance Comparison Chart**

The table below provides more detailed benchmark testing data about the PA-2006 using different speed Intel Pentium processors. The board was configured with 256KB Pipeline Burst SRAM and 32MB SDRAM.

Benchmarks	Weighted Suite	Pentium 166MHz	Pentium 200MHz
Winstone 97	Business Winstone 97	36.3	38.6
	High End Winstone 97	15.4	17.1
Winbench 97	Business Disk WinMark 97	795	803
	High End Disk Winmark97	2430	2460
	CPUmark 16	322	354
	CPUmark 32	321	354
	Business Graphics WinMark 97	51.3	54.7
	High End Graphics WinMark 97	25.4	27.2

b) Cyrix 6x86 Processor Performance

The chart below illustrates the Winstone 97 under Windows 95 performance processor benchmark with the PA-2006 using different speed Cyrix/IBM processors. The board was configured with 256KB Pipeline Burst SRAM and 32MB SDRAM.

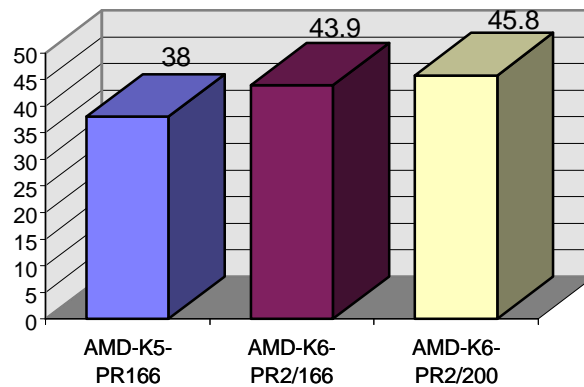**PA-2006 Winstone 97 IBM/Cyrix Performance Comparison Chart**

This table provides a detailed summary of PA-2006 benchmark performance using different speed Cyrix/IBM 6x86 processors. The board was configured with 256KB Pipeline Burst SRAM and 32MB SDRAM.

Benchmarks	Weighted Suite	P166+	P200+
	Business Winstone 97		41.5
	High End Winstone 97		16.6
Winbench 97	WinMark 97	7654	
	High End Disk Winmark97	2380	
	CPUmark 16	323	
	CPUmark 32	349	
	Business Graphics WinMark 97		70.8
	High End Graphics	26.2	33.8

c) AMD-K5 & K6 Processor Performance

The chart below illustrates the Winstone 97 under Windows 95 performance processor benchmark with the PA-2006 using different speed AMD-K5/K6 processors. The board was configured with 256KB Pipeline Burst SRAM and 32MB SDRAM.

**PA-2006 Winstone 97 AMD-K5/K6 Performance
Comparison Chart**

This table summarizes the processor benchmark performance of the PA-2006 using different speed AMD-K5/K6 processors. The board was configured with 256KB Pipeline Burst SRAM and 32MB SDRAM.

Benchmarks	Weighted Suite	K5-PR166	K6-PR2/166	K6-PR2/200
Winstone 97	Business Winstone 97	38.0	43.9	45.8
	High End Winstone 97	16.2	18.6	19.2
Winbench 97	Business Disk WinMark 97	766	869	892
	High End Disk Winmark97	2480	2790	2990
	CPUmark 16	267	390	410
	CPUmark 32	292	456	476
	Business Graphics WinMark 97	66.2	77.8	85.2
	High End Graphics WinMark 97	31.8	37.5	42.1

d) Intel Pentium with MMX (P55C) Processor Performance

The following table summarizes the Processor Benchmark Performance with the PA-2006 using different speed Pentium with MMX (P55C) processors. The tests were conducted on a board featuring 256KB Pipeline Burst SRAM and 32MB SDRAM Memory.

Benchmarks	Weighted Suite	P55C-166MHz	P55C-200MHz
Winstone 97	Business Winstone 97	39.9	42.5
	High End Winstone 97	17.3	18.6
Winbench 97	Business Disk WinMark 97	803	839
	High End Disk Winmark97	2560	2640
	CPUmark 16	349	406
	CPUmark 32	338	388
	Business Graphics WinMark 97	69.3	71.1
	High End Graphics WinMark 97	31.9	34.6

e) Pentium OverDrive Processor Performance

This table summarizes the processor benchmark performance of the PA-2006 using different speed Pentium OverDrive processors. The board was configured with 256KB Pipeline Burst SRAM and 32MB SDRAM.

Benchmarks	Weighted Suite	Pentium OverDrive 150MHz	Pentium OverDrive 166MHz
Winstone 97	Business Winstone 97	37.9	40.2
	High End Winstone 97	15.9	17.3
Winbench 97	Business Disk WinMark 97	796	784
	High End Disk Winmark97	2500	2540
	CPUmark 16	312	347
	CPUmark 32	305	341
	Business Graphics WinMark 97	63.3	70.3
	High End Graphics WinMark 97	29.1	32.4

2.1 Memory Configurations

The table below provides more detailed measurements of the performance of the PA-2006 using the following different memory types: EDO, SDRAM and Fast Page Mode DRAM. The tests were conducted on a board featuring an Intel 166MHz Pentium processor, 32MB Main Memory, and 256KB Pipeline Burst Cache.

Benchmarks	Weighted Suite	Fast Page	EDO	SDRAM
Winstone 97	Business Winstone 97	33.8	35.7	36.3
	High End Winstone 97	14.6	15.2	15.4
Winbench 97	Business Disk WinMark 97	770	780	795
	High End Disk Winmark97	2310	2410	2430
	CPUmark 16	289	313	322
	CPUmark 32	268	305	321
	Business Graphics WinMark 97	45.0	49.2	51.3
	High End Graphics WinMark 97	22.1	24.0	25.4

This table measures the performance of the PA-2006 using different memory sizes of 32MB and 64MB. The tests were done on a board featuring an Intel 166MHz Pentium processor, 256KB Pipeline Burst Cache and EDO DRAM.

Benchmarks	Weighted Suite	32MB	64MB
Winstone 97	Business Winstone 97	35.7	36.1
	High End Winstone 97	15.2	16.4
Winbench 97	Business Disk WinMark 97	780	779
	High End Disk Winmark97	2410	2630
	CPUmark 16	313	301
	CPUmark 32	305	297
	Business Graphics WinMark 97	49.2	53.9
	High End Graphics WinMark 97	24.0	25.2