VIPer824 — kontron

INDUSTRIAL SBC - PENTIUM BASED

QUICK REFERENCE

JUMPER SETTINGS (* : Default Setting)

The CPU core supply is provided by the TEK-067 DC/DC converter module.
Jumpers must be set according to the CPU model and specifications.

Board diagram labels:

- W1 — Internal CPU Clock Speed (use jointly with W2, 3, 4, 5 and W13/7-8)
- W2 W3 W4 W5 — Internal CPU Clock Speed (use jointly with W1 and W13/7-8)
- W6 W7 — Serial Port 2 Termination
- W8 — Watchdog Timer
- W9 — NMI on Power Fail Output
- W10 W12 — Battery Selection / Flat Panel Power Voltage and Interface Level
- W11 — Power Fail Detection Source

⚡ Careful attention should be taken when installing a processor: Faulty settings can damage both the processor and the board.

⚡ Danger of explosion if the battery is incorrectly replaced. Replace only with the same or equivalent type. Dispose of used batteries according to the manufacturer's instructions.

- J1 - IDE Hard Disk (2/1, 40/39)
- J2 - Floppy (2/1, 34/33)
- J3 Kbd/Spkr (2/1, 6/5)
- J4 Serial 2 (2/1, 10/9)
- J5 - Parallel Port (2/1, 26/25)
- J6 - Flat Panel (2/1, 20/10)
- J7 - Video Feature
- J8 - Flat Panel (2/1, 26/25, 50/25)
- J9 Serial 1 (2/1, 10/9)
- P1 - PC/104 16-bit (D19/C19, D0/C0)
- P2 - PC/104 8-bit (A32/B32, A1/B1)
- J11 - External Power
- J10 - External Power
- J12 San-Disk (40/39, 2/1)
- J10 PWR / J11 PWR
- J13 CRT
- S1 - Reset
- J14 Mouse / J14 - PS/2 Mouse
- J15 10/100 Base-TX
- J16 - Fan
- J17 - USB
- TEK-067 Power Supply Module (P2 - DC/DC)
- U7 - DRAM / U8 - DRAM
- U14 - CPU
- B1 BATT
- W13
- w1, w2, w3 (DC/DC)
- SVGA Video / Reset / 10BaseT / 100Base-TX Ethernet
- GREEN: Link Integrity / AMBER: Activity / Lights ON while transferring.

TEK-067 Power Supply Module Location

DRAM : 8MB minimum - 256MB maximum
- Use 32 or 36-bit 72-pin SIMM
- Populate both sockets with same capacity
- Single-sided or double-sided, FPM and EDO

W13: Miscellaneous Features
- 1-2: Reserved
- 3-4: VT100 Mode
- 5-6: Onboard Video Controller
- 7-8: Processor Speed
  (use jointly with W1, 2, 3, 4, 5)

W1, 2, 3, 4, 5, 13 (5-6/7-8) - CPU Clock / w1, 2, 3 - DC/DC Converter

CPU	W1	W2	W3	W4	W5	W13 (7-8)	w1	w2	w3 (1-2)	w3 (3-4)	w3 (5-6)	w3 (7-8)	w3 (9-10)
VIPer824LP	off	on	on	off	off	off	3-5	4-6	off	on	on	off	on	off
75MHz	off	on	on	off	off	off	1-3	2-4	on	off	on	on	off
90MHz	off	on	off	off	off	off	1-3	2-4	on	off	off	on	on	off
100MHz	off	on	off	off	off	off	1-3	2-4	on	off	on	on	off
120MHz	off	on	off	off	on	off	1-3	2-4	on	off	on	on	off
133MHz	off	on	on	off	on	off	1-3	2-4	on	off	on	on	off
150MHz	on	on	on	off	off	off	1-3	2-4	on	off	on	on	off
166MHz	on	on	off	off	off	off	1-3	2-4	on	off	on	on	off
200MHz	on	on	off	off	on	off	1-3	2-4	on	off	on	on	off
166-MMX	on	on	off	off	off	off	3-5	4-6	off	off	off	on	off
200-MMX	on	on	off	off	on	off	3-5	4-6	off	off	off	on	off
233-MMX	off	on	on	off	on	off	3-5	4-6	off	off	off	on	off
K6-166	on	on	off	off	off	off	3-5	4-6	off	off	off	on	off
K6-200	on	on	off	off	on	off	3-5	4-6	off	off	off	on	off
K6-233	off	on	on	off	on	off	3-5	4-6	off	off	off	on	off
K6-2-233	off	on	on	off	on	on	3-5	4-6	off	off	off	off	off
K6-2-266	off	on	off	off	on	on	3-5	4-6	off	off	off	off	off
K6-2-300	off	on	on	on	on	on	3-5	4-6	off	off	off	off	off
K6-2-333	off	on	on	off	off	on	3-5	4-6	off	off	off	off	off
K6-2-366	off	on	off	off	off	on	3-5	4-6	off	off	off	off	off

● W6, W7 - Serial Port 2 Termination

	W6	W7
RS-485 with Termination	on	on
RS-485 without Termination *	off	off

No Termination required in RS-232 mode

● W11 - Power Fail Detection Source

| External Power Fail Input to pin 6 of J11 *	1-2
Internal/External battery when less than 3V	2-3

W8 - Watchdog Timer

Enabled	on
Disabled *	off

● W12 - Voltage Level for Flat Panel and Interface

5V signal level *	1-2
3.3V signal level	2-3

This jumper does not select flat panel power supply

W9 - Non Maskable Interrupt Setup

On Power Fail Output	on
Disabled *	off

W10 - Battery Selection

Internal Battery	1-2
External Battery	2-3
Battery Disconnected *	off

W13 - Extended BIOS Modes

	on	off
1-2	Reserved	Reserved *
3-4	VT100 Mode	Standard Mode *
5-6	Enable Onboard Video *	Disable Onboard Video
7-8	Processor > 233MHz	Processor < 233MHz *

✋ Before Powering ON the Board

1. Ensure the power supply connector is connected properly (+5V, +12V, -12V)
2. Make sure all cables are connected to the adequate connector
3. When using a flat panel, make sure the proper video BIOS is installed

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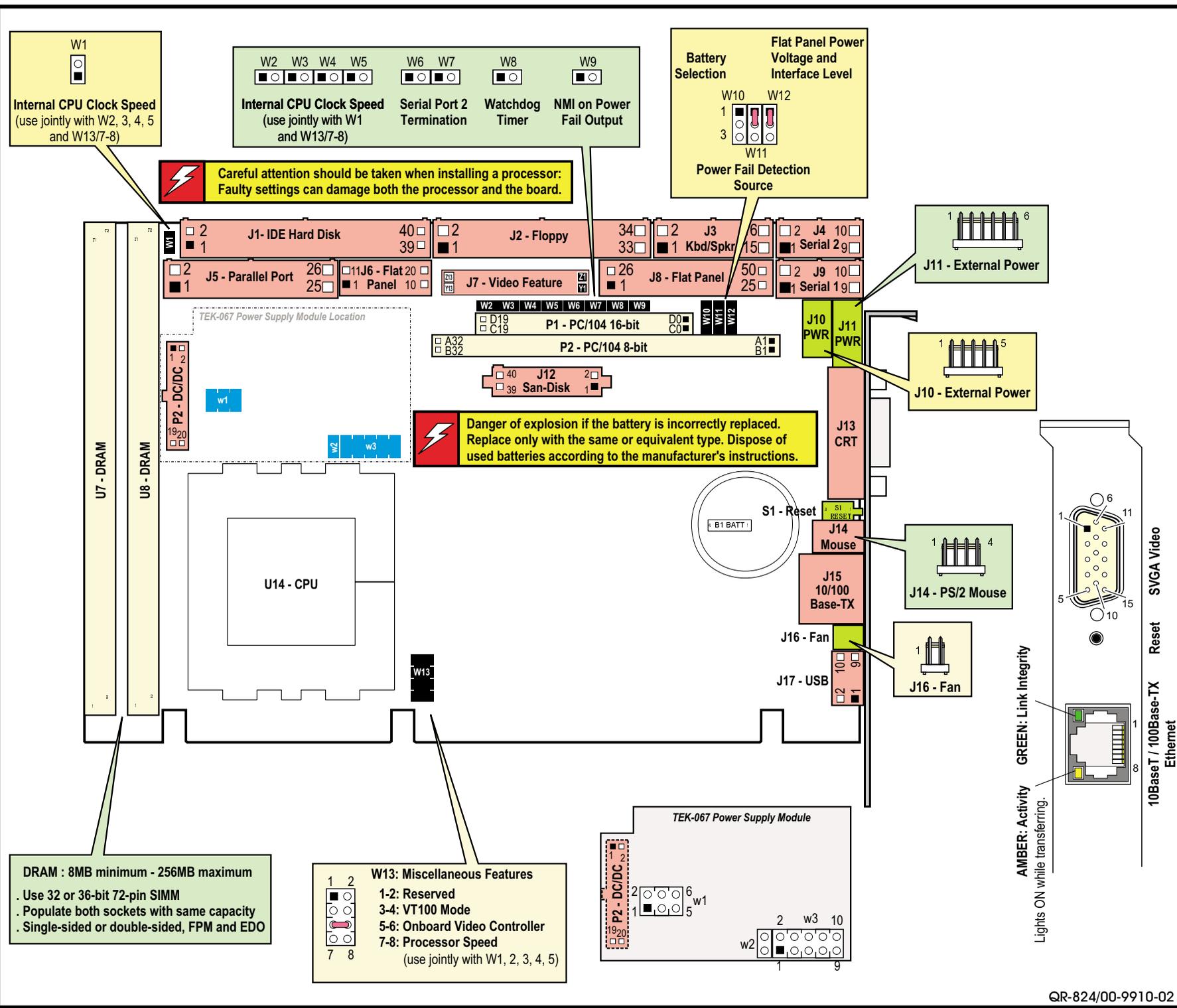
CONNECTOR PINOUTS

J1 - Enhanced IDE

Odd Pin Number (Primary)				# Active Low Signal	
1	RST *	29	DACK#	20	N.C.
3-17	[D7-D0]	31	IRQ14	28	PRIMPDI
19	GND	33 ; 35	A1 ; A0	30	GND
21	REQ	37	CS1#	32	N.C.
23	IOW#	39	ACT#	34	GND
25	IOR#	**Even Pin Number (Primary)**		36	A2
27	IORDY	2 ; 22-26	GND	38	Cs3#
		4-18	[D8-D15]	40	GND

J2 - Floppy Disk

Odd Pin Number				# Active Low Signal	
1-15; 19-25; 31	GND	8	INDEX#	22	WDATA#
17; 27;	N.C.	10	MTR0#	24	WGATE#
29; 33		12	DSEL1#	26	TRK0#
Even Pin Number		14	DSEL0#	28	WRPROT#
2	DENSEL#	16	MTR1#	30	RDATA#
4 ; 6	N.C.	18	DIR#	32	HDSEL#
		20	STEP#	34	DSKCHG#

J3 - Keyboard/Speaker

Odd Pin Number		7	SPEAKER	15	IDE:ACT#
1	KB:CLK	9	KBDINH#	**Even Pin Number**	
3	KB:DATA	11	DOWNLD7	2-4 ; 10-14	GND
5	VCC	13	PBRES#	6-8 ; 16	VCC

 # Active Low Signal

P3 - Regulator *

1	VCC	2	VCC
3	VCC	4	VCC
5	VCC	6	VCC
7	GND	8	GND
9	GND	10	GND
11	VCC3 (3.34V)	12	VCC3 (3.34V)
13	GND	14	GND
15	+12V	16	VCORE
17	VCORE	18	VCORE
19	VCORE	20	VCORE

* P2 on TEK-067 Module

J4 - Serial Port 2 (RS-232)

DCD	1	2	DSR
RXD	3	4	RTS
TXD	5	6	CTS
DTR	7	8	RI
GND	9	10	N.C.

J4 - Serial Port 2 (RS-422/485)

RSV	1	2	RSV
RX(-)	3	4	RX(+)
TX(-)	5	6	TX(+)
RSV	7	8	RSV
GND	9	10	N.C.

J5 - Parallel Port (Std Mode)

Odd Pin Number		Even Pin Number		
STB#	1	2	ALF#	
[D0-D7]	3-17	4	ERR#	
ACK#	19	6	INIT	
BUSY	21	8	SLCTIN#	
PE	23	10-18	Gnd	
SELECT	25	20-26	Gnd	

 # Active Low Signal

J7 - V-Port

GND	Z1-3	Z13	VACTI
I2C_DATA	Z4	Y1-4	VPC0-7
VP_VSYNC	Z5	Y9	I2C_CLK
ENCAM#	Z6	Y10	VP_HSYNC#
VCC	Z7	Y11	VP_IO_1
GND	Z8-11	Y12	VP_IO_2
ZVPCLK	Z12	Y13	GND

 # Active Low Signal

J12 - CompactFlash

1	D11	2	GND
3	D12	4	D3
5	D13	6	D4
7	D14	8	D5
9	D15	10	D6
11	CS1#	12	D7
13	DMACK#	14	CS0#
15	DMARQ	16	IOR#
17	PDIAG#	18	IOW#
19	IRQ15	20	VCC
21	VCC	22	GND
23	GND	24	GND
25	RESET#	26	GND
27	CSEL	28	A02
29	A1	30	DASP#*
31	A0	32	IORDY
33	D0	34	D8
35	D1	36	D9
37	D2	38	D10
39	IOCS16#	40	GND

MEMORY MAPPING

00000-9FFFF	0-640KB DRAM	D8000-FFFFF	System DRAM
A0000-BFFFF	Video DRAM	100000 to Top	System DRAM
C0000-CBFFF	Video BIOS		

Optional: D4000-D7FFF = TEK. BIOS Extens. ; D0000-D3FFF = Flash Window

J6 - Flat Panel

1	FP24	2	FP25
3	FP26	4	FP27
5	GND	6	FP28
7	FP29	8	FP30
9	FP31	10	GND
11	FP32	12	FP33
13	FP34	14	FP35
15	GND	16	GP0
17	GP1	18	GP2
19	ACTI	20	VCC

J8 - Flat Panel

		# Active Low Signal	
1	ENAVCC	15, 16, 18, 19	FP0-FP3
2, 8	VCC	20, 23, 26, 29, 32	GND
3	ENVEE	21, 22, 24, 25	FP4-FP7
4	STANDBY#	27, 28, 30, 31	FP8-FP11
5	ENABKL	33, 34, 36, 37	FP12-FP15
6, 9, 12, 14, 17	GND	35, 38, 41, 44,	GND
7	M/DE	39, 40, 42, 43	FP16-FP19
10	LP/DE	45, 46,	FP20-FP21
11	FLM	47, 50	GND
13	SHFCLK	48, 49	FP22-FP23

J9 - Serial Port 1

DCD	1	2	DSR
RXD	3	4	RTS
TXD	5	6	CTS
DTR	7	8	RI
GND	9	10	N.C.

J10 - External Power (B)

1 ; 4 ; 5	2 ; 3
VCC	GND

J11 - External Power (A)

1	VCC	4	+12V
2	GND	5	-12V
3	GND	6	Pow. Fail Detect

P2/P1 - PC/104

	ROW A	ROW B	ROW C	ROW D
0			GND	GND
1	IOCHK#	GND	SBHE#	MEMCS16#
2	SD7	RESET DRV	SA23	IOCS16#
3	SD6	VCC	SA22	IRQ10
4	SD5	IRQ9	SA21	IRQ11
5	SD4	-5V	SA20	IRQ12
6	SD3	DRQ2	SA19	IRQ15
7	SD2	-12V	SA18	IRQ14
8	SD1	0WS#	SA17	DACK0#
9	SD0	+12V	MEMR#	DRQ0
10	IOCHRDY	N.C.	MEMW#	DACK5#
11	AEN	SMEMW#	SD8	DRQ5
12	SA19	SMEMR#	SD9	DACK6#
13	SA18	IOW#	SD10	DRQ6
14	SA17	IOR#	SD11	DACK7#
15	SA16	DACK3#	SD12	DRQ7
16	SA15	DRQ3	SD13	VCC
17	SA14	DACK1#	SD14	MASTER#
18	SA13	DRQ1	SD15	GND
19	SA12	REFRESH#	N.C.	GND
20	SA11	SYSCLK		
21	SA10	IRQ7		
22	SA9	IRQ6		
23	SA8	IRQ5		
24	SA7	IRQ4		
25	SA6	IRQ3		
26	SA5	DACK2#		
27	SA4	T/C		
28	SA3	BALE		
29	SA2	VCC		
30	SA1	OSC		
31	SA0	GND		
32	GND	GND		

 # Active Low Signal

J13 - CRT SVGA

1	RED	6-8	A_GND
2	GREEN	12	SDATA
3	BLUE	13	HSYNC
4; 9;11	N.C.	14	VSYNC
5 ; 10	GND	15	SCLK

J14 - PS/2 Mouse

1	MOUSE:CLK	3	MOUSE:DATA
2	GND	4	VCC

J15 - Ethernet 10/100Base-TX

1	TX+	5	N.C.
2	TX-	6	RX-
3	RX+	7	N.C.
4	N.C.	8	N.C.

J16 - CPU Fan

1	VCC	2	GND

J17 - USB

1	USB0:VCC	2	USB1:VCC
3	USB0:DATA-	4	USB1:DATA-
5	USB0:DATA+	6	USB1:DATA+
7	USB0:GND	8	USB1:GND
9	GND	10	GND

I/O MAPPING

000-01F	DMA controller 1	1F0-1F7 ; 3F6	Primary IDE
020-03F	Interrupt Controller 1	170-177 ; 376	Secondary IDE
040-05F	Timers	3F0-3F7	Floppy Disk (opt.: 370-377)
060-06F	Keyboard	378-37A	Parallel Port (opt.: 3BC-3BE or 278-27A)
070-07F	Real Time Clock	3F8-3FF (Serial P. 1)	COM1 by default (opt.: 2F8-2FF/COM2 or 3E8-3EF/COM3 or 2E8-2EF/COM4)
080-09F	DMA Page Register		
0A0-0BF	Interrupt Controller 2	2F8-2FF (Serial P. 2)	COM2 by default (opt.: 3F8-3FF/COM1 or 3E8-3EF/COM3 or 2E8-2EF/COM4:)
0C0-0DF	DMA Controller 2		
0F0-0FF	Math Coprocessor	3C0-3CF ;	Graphics Controller
190-197	Kontron Control Port (opt.: 290-297 or 390-397)	3D0-3DF ; 3B0-3BB	(I2C Port)

The Technical Reference Manual can be downloaded from the Kontron FTP site at:
ftp://ftp.kontron.ca/Support/Product_Manuals/
The Quick Reference can be downloaded from:
ftp://ftp.kontron.ca/Support/Product_Manuals QuickRef/

To order a hard copy of the Technical Reference Manual, contact Customer Service at **(450) 437-5682**.

First Level Debugging

1. Remove all peripheral boards from the backplane. Only keep the SBC.
2. Remove all cables from the SBC except the video cable
3. Make sure the memory is properly inserted and good working

VIPer824 TECHNICAL SPECIFICATIONS

CPU TYPE & SPEED
Pentium 133, and 166MHz ; Pentium MMX 200, and 233MHz

SYSTEM MEMORY
DRAM: 8 to 256MB FPM or EDO with parity / non-parity and ECC support ; on two 72-pin SIMMs
L2 Cache: 512KB pipelined burst
CompactFlash Module: up to 24MB ; unique silicon serial number ; 4KB user EEPROM

BUS INTERFACE
PC/AT bus or stand-alone operation ; compatibility: 100% IBM PC/AT ; PC/104 ; PCI Rev2.1 (internal)

DATA PATH
64-bit on CPU bus ; 64-bit on video bus ; 16-bit on ISA bus ; 32-bit on PCI bus (internal)

VIDEO
Chips & Technologies 69000 video processor chip with 2MB video SDRAM integrated
Flat panel supports for monochrome, S/S and D/D STN, EL, TFT, and plasma displays
CRT and FP up to 1280x1024x256 colors ; direct support of 1024x768xXGA panels
GUI and video acceleration ; Simultaneous CRT/flat panel support ; 24-bit flat panel
V-Port interface ; compatible with TEK-380 VIPerVision Real-Time digital video module

I/O
SMC FDC37C932 Ultra I/O ; PnP compatible
SERIAL: two RS-232 ports (COM1-4) with RS-422/485 available on COM2 (BIOS configurable)
PARALLEL: one bi-directional port (LPT1) with nibble, byte, EPP and ECP modes
HARD DISK: one Enhanced IDE interface supporting up to two drives
FLOPPY DISK: one interface for two 1.44 or 2.88MB floppy drives
USB: two Universal Serial Bus port
ETHERNET: PCI 10/100Base-TX interface, PCI rev. 2.1 compliant bus master
COMPACTFLASH: supported by all OS ; IDE compatible w/o driver ; bootable ; upgradable

BIOS FEATURES
AWARD BIOS in Boot Block Flash ; auto configuration and extended setup ; PnP peripheral support
Programmable CPU and memory wait states ; BIOS shadowing in RAM
Extension for diskless, keyboardless and videoless operations
Advanced Power Management ; CPU Thermal management

SUPERVISOR UTILITIES
Watchdog timer ; Power Failure / low battery detection ; CPU temp. sensor / alarm

POWER SUPPLY

Proc. Speed	133	166	200MMX	233MMX
ICC typ.: 5V	2.68A	2.96A	3.28A	3.64A
ICC Susp.: 5V	1.40A	1.42A	1.48A	1.56A
Setup	16MB DRAM ; 512KB Cache ; 2MB Video DRAM ; Ethernet			

OPERATING CONDITIONS
0°C to 62°C with airflow ; R.H. : 5% to 95% ; MTBF : > 100,000 hours (MIL-HDBK-217F)

ELECTRICAL / MECHANICAL
Board dimensions : 4.8 in. x 7.1 in. (122 mm x 181 mm)
Conforms to IEEE P996 PC/AT bus electrical and mechanical specifications