VIPer820 — TEKNOR INDUSTRIAL COMPUTERS INC

PENTIUM SINGLE BOARD COMPUTER

QUICK REFERENCE

Labels on board diagram:

- W1: SCSI Termination
- J6 - SMI
- W2, W3: use jointly with W13, W14, W15
- J7 - Fan
- W4 W5 — Feature Con. V-Port
- W6 W7 — Serial 2 Termination
- W8 — NMI on Power Fail
- W9 W11 / W10
- W9: Power Fail Detection Source
- W10: Battery Selection
- W11: Voltage Level for Flat Panel Control Signal
- J1 - IDE Hard Disk (41 / 1)
- J2 - Floppy (80 / 40 / 2 / 1)
- J3 - Kbd/Spkr (34 / 33 / 2 / 16 / 15)
- J4 - Serial 2 (2 / 1 / 10 / 9)
- J5 - SCSI (26 / 1 / 50 / 25)
- J8 - Video Feature
- J9 - Flat Panel (26 / 1 / 50 / 25)
- J10 - Serial 1 (2 / 1 / 10 / 9)
- P3 - DC/DC (1 2 / 19 20)
- P1 - PC/104 16-bit (D19 / C19 / D0 / C0)
- P2 - PC/104 8-bit (A32 / B32 / A1 / B1)
- J11 / J12
- J11 - PS/2 Mouse (1 / 4)
- J12 - External Power (A) (1 / 6)
- J13 - SVGA
- J14 - External Power (B) (1)
- J19 - Parallel Port
- U2 / U3
- BATTERY 3.6V / B1
- TEK-067 Power Supply Module Location
- SVGA Video (1 / 6 / 11 / 5 / 15 / 10)
- Parallel Port (1 / 14 / 13 / 25)
- W13 W14 W15 / W16 W17 W18 W19
- W2 W3 / W13 W14 W15 — W2, W3, W13, W14, W15: Internal CPU Clock Speed
- W18 W19 — W18: BIOS Boot Selection / W19: Watchdog Timer
- W16: Supervisor I/O Base Address (2 / 4 / 1 / 3)
- W17: Extended BIOS Modes (2 / 8 / 1 / 7)
- TEK-067 Power Supply Module
- P2 - Regulator (2 / 6 / 1 / 5 / w1) / (2 / 10 / 1 / 9 / w3 / w2 / 19 20)

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

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

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 right connectors
3. When using a flat panel, make sure the proper video BIOS is installed

QR-820/02-9808-01

JUMPER SETTINGS (* : Initial Setting)

W1 - SCSI Termination

Controlled by Software	1-2
Disabled by Hardware	off
Controlled by Hardware * (Board is Terminated)	2-3

W2, 3, 13, 14, 15 - CPU Clock

CPU Clock	W2	W3	W13	W14	W15
75MHz	on	on	off	off	off
90MHz	on	off	off	off	off
100MHz	off	off	off	off	off
120MHz	on	off	off	on	off
133MHz	off	off	off	on	off
150MHz	on	off	off	off	on
166MHz	off	off	off	off	on
200MHz	off	on	on	on	on
233MHz	off	off	off	off	off

The CPU core voltage is provided by the TEK-067 Power Supply module. Jumpers must be set according to the CPU model and specifications.

w1, w2, w3 - CPU Core Voltage Selection (TEK-067 Daughterboard)

	CPU Model	Comments	w1	w2	w3 1-2	3-4	5-6	7-8	9-10
Pentium	100, 120, 133, 150, 166, and 200	Single-plane Vcore=Vio=3.3V	1-3 ; 2-4	on	on	off	on	on	off
Pentium	166, 200, and 233 MMX	Split-plane Vcore=2.8V; Vio=3.3V	3-5 ; 4-6	off	off	off	on	on	off
AMD	K6-166 and K6-200	Split-plane Vcore=2.9V; Vio=3.3V	3-5 ; 4-6	off	on	off	off	on	off
AMD	K6-233	Split-plane Vcore=3.2V; Vio=3.3V	3-5 ; 4-6	off	on	off	off	on	off

⚡ **Careful attention should be taken when installing a processor: Faulty jumper settings may damage both your processor and your board.**

W4, W5 - Feature Connector/V-Port

(configure jointly)	W4	W5
Feature connector Enabled	off	on
Feature connector disabled *	on	off
V-Port Enabled (For TEK-380)	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

W8 - Non Maskable Interrupt Setup

On Power Fail Output	on
Disabled *	off

W9 - Power Fail Detection Source

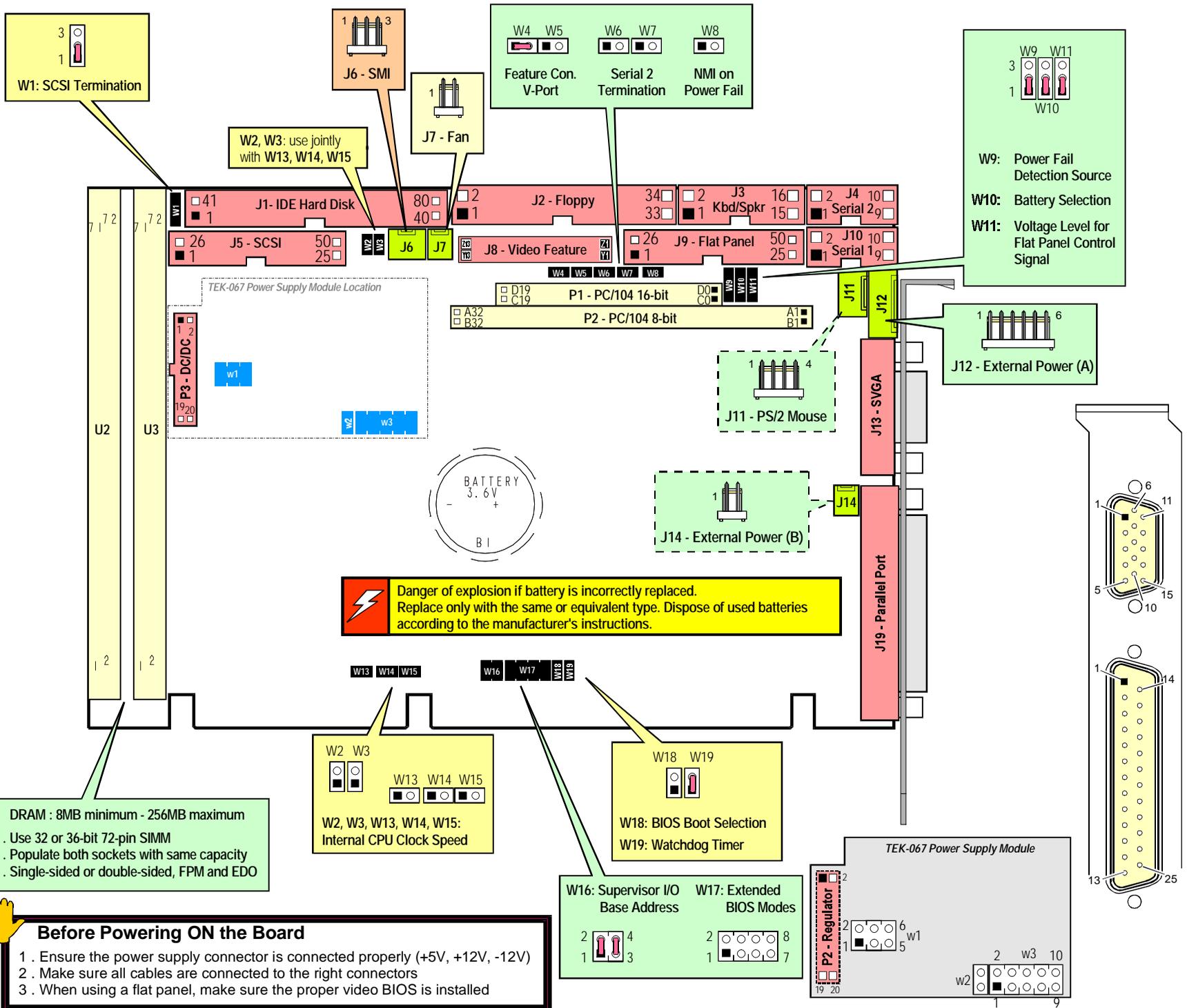|	
External Power Fail Input to pin 6 of J12 *	1-2
Internal/External battery when less than 3V	2-3

W10 - Battery Selection

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

W11 - Voltage Level for Flat Panel Control

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

This jumper does not select flat panel power supply

W16 - Supervisor I/O Base Address

190H *	1-2 ; 3-4	390H	3-4
290H	1-2	390H	none

W17 - Extended BIOS Modes

	on	off *
1-2	Serial Download Mode	Normal Mode
3-4	VT100 Mode	Standard Mode
5-6	Disable TEK. Extension	Enable TEK. Extension
7-8	Disable Onboard VGA	Enable Onboard VGA

W18 - BIOS Boot

Emergency	on
Normal *	off

W19 - Watchdog

Enabled *	on
Disabled	off

CONNECTOR PINOUTS

J1 - Enhanced IDE (Primary / Secondary)   * Active Low Signal

Odd Pin Number (Primary)

Pin	Signal	Pin	Signal	Pin	Signal
1	RESET *	29	DMA ACK 0 *	20	N.C.
3-17	[HD7-HD0]	31	IRQ14	28	BALE
19	GND	33 ; 35	SA1 ; SA0	30	GND
21	DMA REQ 0	37	CS0 *	32	IOCS16 *
23	IOW *	39	ACTIVE *	34	GND
25	IOR *		**Even Pin Number (Primary)**	36	SA2
27	IOCHRDY	2 ; 22-26	GND	38	CS1 *
		4-18	[HD8-HD15]	40	GND

Odd Pin Number (Secondary)

Pin	Signal	Pin	Signal	Pin	Signal
41	RESET *	69	DMA ACK 1 *	60	N.C.
43-57	[HD7-HD0]	71	IRQx	68	BALE
59	GND	73 ; 75	SA1 ; SA0	70	GND
61	DMA REQ 1	77	CS2 *	72	IOCS16 *
63	IOW *	79	ACTIVE *	74	GND
65	IOR *		**Even Pin Number (Secondary)**	76	SA2
67	IOCHRDY	42 ; 62-66	GND	78	CS1 *
		44-58	[HD8-HD15]	80	GND

J2 - Floppy Disk   * Active Low Signal

Odd Pin Number

Pin	Signal	Pin	Signal	Pin	Signal
1-15 ; 19-25 ; 31	GND	8	INDEX *	22	WDATA *
17 ; 27 ; 29 ; 33	N.C. by default (or see W2/W3 setups)	10	MOTOR ON 0, 1 *	24	WENABLE *
		12	DRIVE SEL. B *	26	TRACK 0 *
		14	DRIVE SEL. A *	28	WPROTECT *
Even Pin Number		16	MOTOR ON 2 *	30	RDATA *
2	DRVEND *	18	DIR CONTROL *	32	HEAD SELECT *
4 ; 6	N.C.	20	STEP *	34	DSKCHG

J3 - Keyboard   * Active Low Signal

Odd Pin Number

Pin	Signal	Pin	Signal	Pin	Signal
1	KCLK	7	SPKR OUT	15	HDACT *
3	KBDATA	9	KBDINH		**Even Pin Number**
5	VCC (+5V)	11	DOWNLD *	2-4 ; 10-14	GND
		13	PBRES *	6-8 ; 16	VCC (+5V)

J5 - Fast SCSI Interface

Odd Pin Number

Pin	Signal	Pin	Signal
1-23 ; 27-49	GND	34	GND
25	N.C.	36	SBSY
Even Pin Number		38	SACK
2-16	[SD0-SD7]	40	SRST
18	SDP	42	SMSG
20-24 ; 28-30	GND	44	SSEL
26	Term. Power	46	SCD
32	SATN	48	SREQ
		50	SIO

I/O MAPPING

Address	Function
000-00F	DMA controller 1
020-03F	Interrupt Controller 1
040-043	Counter/Timers
060-064	Keyboard (8742)
070-071	Real Time Clock
080-09F	DMA Page Register
0A0-0BF	Interrupt Controller 2
0C0-0DF	DMA Controller 2
0EA-0EB	Reserved for TEK-PAK
024-026	Configuration Registers
0F0-0FF	Math Coprocessor / Config. Reg.
190-197	TEKNOR Control Port (opt.: 290-297 or 390-397)
1F0-1F7 ; 3F6-3F7	IDE Hard Disk
300-317	Ethernet Port (opt.: 320-337 or 340-357)*
3F0-3F7	Floppy Disk (opt.: 370-377)
378-37A	Parallel Port (opt.: 3BC-3BE or 278-27A)
3F8-3FF (Serial P. 1)	COM1 by default (opt.: 2F8-2FF/COM2 or 3E8-3EF/COM3 or 2E8-2EF/COM4;)
2F8-2FF (Serial P. 2)	COM2 by default (opt.: 3F8-3FF/COM1 or 3E8-3EF/COM3 or 2E8-2EF/COM4;)
3C0-3CF ; 3D0-3DF ; 3B0-3BB	Graphics Controller

* Other address ranges: 360-377, 380-397, 3A0-3B7, 3C0-3D7 and 3E0-3F7

First Level Debugging

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

J7 - CPU Fan

Pin	Signal	Pin	Signal
1	+12V	2	GND

J8 - Video Feature

Signal	Pin	Pin	Signal
GND	Z1-3	Z13	OVRW *
FCEVID *	Z4	Y1-8	FCP0-7
FCESYNC *	Z5	Y9	FCDCLK
N.C.	Z6-7	Y10	FCBLANK *
GND	Z8-9	Y11	FCHSYNC
GND	Z10-11	Y12	FCVSYNC
FCVCLK	Z12	Y13	GND

J10 - Serial Port 1

Signal	Pin	Pin	Signal
DCD 1	1	2	DSR 1
RXD1	3	4	RTS 1
TXD 1	5	6	CTS 1
DTR 1	7	8	RI 1
GND	9	10	N.C.

J11 - PS/2 Mouse

Pin	Signal	Pin	Signal
1	MCLK	3	MDATA
2	GND	4	VCC (+5V)

J12 - External Power (A)

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

J13 - CRT SVGA

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

J14 - External Power (B)

Pin	Signal	Pin	Signal
1	GND	2	VCC (+5V)

J13 - Parallel Port (Std Mode)

Pin	Signal	Pin	Signal
1	STB *	15	ERR *
2-9	D0-D7	16	INIT *
10	ACK *	17	SLCTIN *
11	BUSY	18-20	GND
12	PE	21-23	GND
13	SLCT	24-25	GND

* Active Low Signal

P3 - Regulator *

Pin	Signal	Pin	Signal
1	VCC (+5V)	2	VCC (+5V)
3	VCC (+5V)	4	VCC (+5V)
5	VCC (+5V)	6	VCC (+5V)
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

J9 - Flat Panel   * Active Low Signal

Pin	Signal	Pin	Signal
1-4	FP4-FP7	30, 31	GP0, GP1
5-8	FP12-FP15	33	ENB (Backlight)
9, 10, 11, 12	FP19, 18, 11, 10	35	LLCLK
13-16	FP23-FP20	36	GND
17	GND	37	FPVEE
18	FPVDCLK	38	FPVCC
19, 21, 25	GND	39	FP2
20	FP9	40	GP2
22	LFS	41	STANDBY *
23	FP3 (MOD)	42, 43	FP16, FP1
24	FP0	44	FP17
26	FPDE	45, 46	N.C.
27, 28, 32, 34	GND	47, 48	VCC (+5V)
29	FP8	49, 50	+12V

P2/P1 - PC/104   * Active Low Signal

	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 (+5V)	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 (+5V)
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 (+5V)		
30	SA1	OSC		
31	SA0	GND		
32	GND	GND		

The Technical Reference Manual can be downloaded from the TEKNOR Web Site at **www.teknor.com**.

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

J4 - Serial Port 2 (RS-232)

Signal	Pin	Pin	Signal
DCD 2	1	2	DSR 2
SIN 2	3	4	RTS 2
SOUT 2	5	6	CTS 2
DTR 2	7	8	RI 2
GND	9	10	N.C.

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

Signal	Pin	Pin	Signal
DCD 2	1	2	DSR 2
RX(-)	3	4	RX(+)
TX(-)	5	6	TX(+)
DTR 2	7	8	RI 2
GND	9	10	N.C.

J6 - SMI

Pin	Signal	Pin	Signal	Pin	Signal
1	SMI	2	N.C.	3	GND

MEMORY MAPPING

Address	Function
00000-9FFFF	0-640KB DRAM
A0000-BFFFF	Video DRAM
C0000-C7FFF	Video BIOS
C8000-CBFFF	TEK. BIOS Exten.
CC000-CFFFF	Flash Window
D8000-DFFFF	System DRAM
E0000-FFFFF	System BIOS
100000 to Top	System DRAM

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

VIPer820 TECHNICAL SPECIFICATIONS

☆ **CPU TYPE & SPEED**
Pentium 100, 133, and 166MHz ; Pentium MMX 166, 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
Flash Disk: 0, 2 or 4MB ; unique silicon serial number

☆ **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 ; 16-bit on ISA bus ; 32-bit on PCI bus (internal)

☆ **VIDEO**
Cirrus Logic GD7548 video processor chip with PCI local bus interface ; 1MB EDO video DRAM
Flat panel supports for monochrome, S/S and D/D STN, EL and TFT displays
SVGA resolutions to 1024x768x256 colors or 1280x1024x16 colors
GUI and video acceleration ; Simultaneous CRT/flat panel support
Video feature connector ; 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 : 1 bi-directional port (LPT1) with PC/XT, AT, PS/2, EPP and ECP modes
HARD DISK : Enhanced IDE interface with two channels supporting up to four drives
FLOPPY DISK : interface for two 1.44 or 2.88MB floppy drives

☆ **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 ; Power management support
MS-DOS and application bootup from Flash EPROM

☆ **SUPERVISOR UTILITIES**
Watchdog timer ; Power Failure / low battery detection

☆ **POWER SUPPLY**
VOLTAGE : +5V ±5% ; +12V ±5% ; IPP: +12V/10mA

Proc. Speed	100	133	166	166MMX	200MMX	233MMX
ICC typ.: 5V	2.34A	2.70A	2.98A	3.23A	3.55A	3.78A
ICC Susp.: 5V	1.24A	1.26A	1.27A	1.43A	1.49A	1.56A
Setup	8MB DRAM ; 256KB Cache ; 2MB Flash Disk ; 1MB Video DRAM					

☆ **OPERATING CONDITIONS**
0°C to 62°C with airflow ; R.H. : 5% to 95% ; MTBF : > 115,000 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

Contact TEKNOR INC. for Technical Support

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