

## QUICK REFERENCE

### JUMPER SETTINGS (\* : Initial Setting)

● W3, W6, W10, W11 - CPU / Bus Clock				
	W3	W6	W10	W11
50MHz	off	on	on	off
60MHz	off	on	off	off
66MHz	on	off	on	on

● W5 - SCSI Termination	
Controlled by Software	1-2
Disabled by Hardware	off
Controlled by Hardware * (Board is Terminated)	2-3

● W4, W9 - CPU / Bus Clock Multiplier			
	W4	W9	Internal CPU Speed / Bus Clock
1.5 x	off	off	75MHz/50MHz ; 90MHz/60MHz ; 100MHz/66MHz
2 x	on	off	120MHz/60MHz ; 133MHz/66MHz
2.5 x	on	on	150MHz/60MHz ; 166MHz/66MHz
3 x	off	on	200MHz/66MHz
3.5 x	off	off	233MHz/66MHz (233 MMX)

● W12 - Flat Panel Clock Shift	
Inverted	1 - 2
Normal *	2 - 3

● W13 - Watchdog Timer	
Dual Watchdog	1 - 2
Single Watchdog *	2 - 3
Watchdog Disabled	off

● W14, W15 - VBatt Internal Battery		
	W14	W15
Onboard battery	1 - 2	2 - 3
External Battery *	2 - 3	1 - 2
No Battery	off	off

● W16 - IOCHK Select	
From Power Fail Output	1 - 2
From Watchdog Stage 1	2 - 3
Disabled *	off

● W17, W18 - RS-485 Termination		
	W17	W18
RS-485 with Termination	on	on
RS-485 without Termination *	off	off

● W19 - Supervisor I/O (Base Address)				
	190h *	290h	390h	390h
1 - 2	on	on	off	off
3 - 4	on	off	on	off

● W20 - Ethernet Enabling	
Disabled	on
Enabled *	off

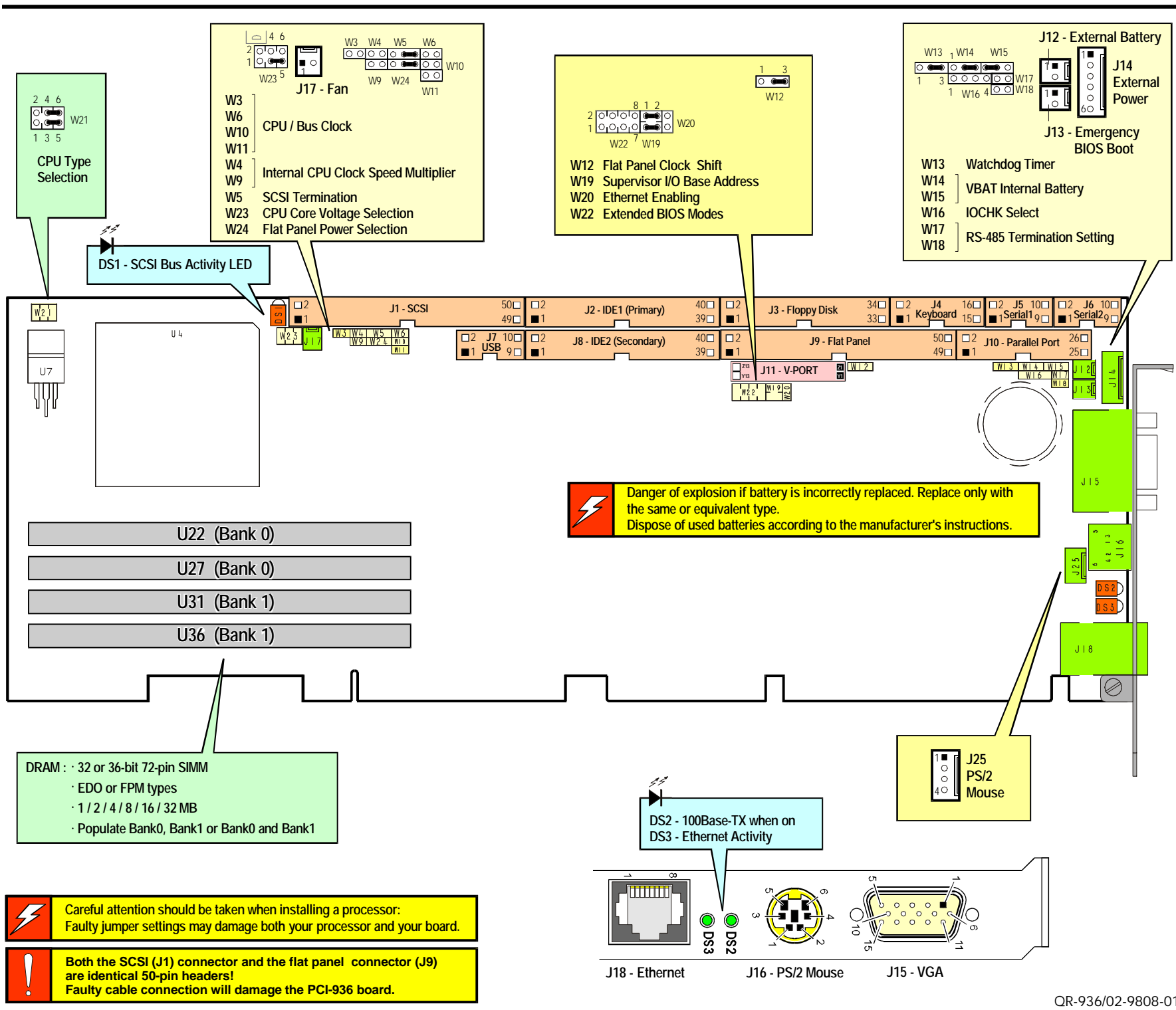
● W21 - CPU Type Selection	
Single Supply *	4 - 6 and 3 - 5 on
Split-plane (MMX, K6)	2 - 4 and 1 - 3 on

● W22 - Extended BIOS Modes		
	on	off *
1 - 2	Serial Download Mode	Normal Mode
3 - 4	VT100 Mode	Standard Mode
5 - 6	Disable TEKNOR Extension	Enable TEKNOR Extension
7 - 8	Disable Onboard VGA Controller	Enable Onboard VGA Controller

● W23 - CPU Core Voltage Selection				
	2 - 4	1 - 3	4 - 6	3 - 5
2.5V	off	off	off	off
2.8V	off	off	on	off
2.9V	on	off	off	off
3.3V	off	off	off	on

● W24 - Flat Panel Power Selection	
3.3V Selection	1 - 2
5V Selection*	2 - 3

● J13 - BIOS Boot Selection	
Normal *	off
Emergency (Boot Block Flash)	on



**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.**

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

**Both the SCSI (J1) connector and the flat panel connector (J9) are identical 50-pin headers! Faulty cable connection will damage the PCI-936 board.**

# CONNECTOR PINOUTS

◆ J1 - PCI Ultra SCSI Interface					
Odd Pin Number		20-24 ; 28-30	Gnd	40	SRST
1-23 ; 27-49	Gnd	26	Term Power	42	SMSG
25	Not Connected	32	SATN	44	SSEL
Even Pin Number		34	Gnd	46	SCD
2-16	[SD0-SD7]	36	SBSY	48	SREQ
18	SDP	38	SACK	50	SIO

◆ J2 - Enhanced IDE (Primary) * Active Low Signal					
Odd Pin Number		29	DMA ACK0 *	20	Not Connected
1	RESET *	31	IRQ14	28	Pulled Up
3-17	[HD7-HD0]	33 ; 35	SA1 ; SA0	30	Gnd
19	Gnd	37	CS1 *	32	IOCS16 *
21	DMA REQ0	39	ACTIVE *	34	Gnd
23	IOW *	Even Pin Number		36	SA2
25	IOR *	2 ; 22-26	Gnd	38	CS3 *
27	IOCHRDY	4-18	[HD8-HD15]	40	Gnd

◆ J3 - Floppy Disk * Active Low Signal					
Odd Pin Number		8	INDEX *	22	WRITE DATA *
1-27 ; 31	Gnd	10	Motor ON 0,1 *	24	WRITE ENABLE *
29	Media ID1	12	DRIVE SEL. B *	26	TRACK 0 *
31	Media ID0	14	DRIVE SEL. A *	28	WRITE PROTECT *
Even Pin Number		16	Motor ON 2 *	30	READ DATA *
2	Drv Dens. Sel. 0 *	18	DIR CONTROL	32	HEAD SELECT *
4 ; 6	Not Connected	20	STEP *	34	DSKCHG *

◆ J4 - Keyboard * Active Low Signal				◆ J5 - Serial Port 1 / RS-232			
Odd Pin Number		7	SPKR OUT	15	ACT1 *	DCD 1 1 2 DSR 1	
1	KCLK	9	KBDINH	Even Pin Number		SIN 1 3 4 RTS 1	
3	KDATA	11	DOWNLD *	2-4 ; 10-14	Gnd	SOUT 1 5 6 CTS 1	
5	VCC (+5V)	13	PBRES *	6-8 ; 16	VCC (+5V)	DTR 1 7 8 RI 1	
				Gnd	9	10 Not Conn.	

◆ J6 - Serial Port 2 / RS-232				◆ J6 - Serial Port 2 / RS-485				◆ J7 - USB			
DCD 2	1	2	DSR 2	DCD 2	1	2	DSR 2	VCC	1	2	VCC
SIN 2	3	4	RTS 2	RX(-)	3	4	RX(+)	PO-	3	4	PI-
SOUT 2	5	6	CTS 2	TX(-)	5	6	TX(+)	PO+	5	6	PI+
DTR 2	7	8	RI 2	DTR 2	7	8	RI 2	Gnd	7	8	Gnd
Gnd	9	10	Not Conn.	Gnd	9	10	Not Conn.	Gnd	9	10	Gnd

◆ J8 - Enhanced IDE (Secondary) * Active Low Signal					
Odd Pin Number		29	DMA ACK1 *	20	Not Connected
1	RESET *	31	IRQ0	28	Pulled Up
3-17	[HD7-HD0]	33 ; 35	SA1 ; SA0	30	Gnd
19	Gnd	37	CS1 *	32	IOCS16 *
21	DMA REQ1	39	ACTIVE *	34	Gnd
23	IOW *	Even Pin Number		36	SA2
25	IOR *	2 ; 22-26	Gnd	38	CS3 *
27	IOCHRDY	4-18	[HD8-HD15]	40	Gnd

◆ J9 - Flat Panel * Active Low Signal					
Odd Pin Number		13	SHFCLK	Even Pin Number	
1	ENAVDD	15	P0	2	VCC 3.3V or 5V
3	ENAVEE	19-21 ; 25-27	P3-P4 ; P7-P8	4	STNDBY *
5	ENABLK	31-33	P11-P12	6; 12-14; 20	Gnd
7	M/DE	35; 41; 47	Gnd	8	ACT1
9; 17; 23; 29	Gnd	37-39	P15-P16	10	LP/DE
11	FLM	43-45 ; 49	P19-P20 ; P23	16-18 ; 22-24	P1-P2 ; P5-P6
				26 ; 32	Gnd
				28-30	PP9-P10
				34-36	P13-P14
				38	Gnd
				40-42	P17-P18
				44 ; 50	Gnd
				46-48	P21-P22

◆ J10 - Parallel Port /Standard				◆ J10 - Parallel Port /EPP				◆ J10 - Parallel Port /ECP			
Odd Pin Number		Even Pin Number		Odd Pin Number		Even Pin Number		Odd Pin Number		Even Pin Number	
STROBE *	1	2	AUTOFD *	WRITE *	1	2	DATASTB *	STROBE *	1	2	Autofd <sup>1</sup> / Hostack <sup>2</sup>
[PD0-PD7]	3-17	4	ERROR *	[PD0-PD7]	3-17	4	Not Used	[PD0-PD7]	3-17	4	Fault <sup>1</sup> / Per.Rqst <sup>2</sup>
ACK *	19	6	INIT *	INTR	19	6	Not Used	ACK *	19	6	Init <sup>1</sup> / Per.Rqst <sup>2</sup>
BUSY	21	8	SELECTIN*	WAIT *	21	8	ADDRSTRB *	Busy, Periphack <sup>2</sup>	21	8	SELECTIN <sup>1,2</sup>
PE	23	10-18	Gnd	Not Used	23	10-18	Gnd	Perorr, AckRev <sup>2</sup>	23	10-18	Gnd
SELECT	25	20-26	Gnd	Not Used	25	20-26	Gnd	SELECT	25	20-26	Gnd

\* Active Low Signal 1 Compatible Mode 2 High Speed Mode

◆ J11 - VPORT					
Y1	D0/8	Y5	D4/12	Y9	SCL
Y2	D1/9	Y6	D5/13	Y10	HREF
Y3	D2/10	Y7	D6/14	Y11 ; Y12 ; Z6 ; Z13	N.C.
Y4	D3/11	Y8	D7/15	Y13 ; Z1 ; Z3 ; Z8 ; Z11	Gnd
			Z4	SDA	
			Z5	VREF	
			Z7	VCC	
			Z12	VCLK	

◆ J12 - Ext. Battery		◆ J13 - Emer. BIOS Boot		◆ J14 - Ext. Power			◆ J17 - Fan		
1	External Battery	1	EMER *	1 ; 6	VCC	4	+12V	1	+12V
2	Gnd	2	Gnd	2 ; 3	Gnd	5	Gnd	2	Gnd

◆ J15 - VGA			◆ J16 PS/2 Mouse (DIN)		
1	RED	6-8	A_Gnd	1	MDATA
2	GREEN	12	SDA	2	N.C.
3	BLUE	13	HSYNC	3	Gnd
4 ; 9 ; 11	N.C.	14	VSYSN	4	Gnd
5 ; 10	Gnd	15	SCL	5	MCLK
				6	Gnd
				7	Chassis Gnd
				8	Chassis Gnd
				9	Chassis Gnd

◆ J18 - Ethernet 10/100Base-Tx			◆ J25 - PS/2 Mouse		
1	TX+	6	TX-	1	MCLK
2	RX+	7	N.C.	2	Gnd
3	N.C.	8	RX-	3	MDATA
4	N.C.	9	N.C.	4	Gnd
5	Chassis Gnd	10	Chassis Gnd		

MEMORY MAPPING		
00000-9FFFF	0-640KB	DRAM
A0000-BFFFF	Video	DRAM
C0000-CBFFF	Video	BIOS
CC000-CFFFF	TEK. BIOS	Extension
D0000-D3FFF	Flash	Window
D4000-D7FFF	TEK BIOS	Ext.(option)
D8000-DFFFF	System	DRAM
E0000-E3FFF	Flash	Window.(option)
E0000-FFFFF	System	BIOS
100000 to top	1MB to top	of RAM

I/O MAPPING					
000-00F	DMA controller	0F0-0FF	Math coproc. config. reg	378-37A	Parallel Port (LPT1)
020-03F	Interrupt controller	170-177 ; 376	Secondary IDE	390-397	TEKNOR Ctrl Port(option)
040-043	Timer	190-197	TEKNOR Control Port	3BC-3BE	Parallel Port(option)
060-064	Keyboard (8742)	1F0-1F7 ; 3F6	Primary IDE	3E8-3EF	COM3
070-071	RTC, NMI mask	278-27A	Parallel Port(option)	3F0-3F7	Floppy Disk
080-09F	DMA Page Register	290-297	TEKNOR Ctrl Port(option)	3F8-3FF	COM1
0A0-0BF	Interrupt controller 2	2E8-2EF	COM4	3C0-3CF	Graphics controller
0C0-0DF	DMA controller 2	2F8-2FF	COM2	3D0-3DF	
0ED-0EF	Configuration registers	370-377	Floppy Disk (option)	3B0-3BB	

**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

**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

# PCI-936 TECHNICAL SPECIFICATIONS

**CPU TYPE & SPEED**  
Pentium 100, 120, 133, 150, 166 & 200 MHz ; Pentium 166, 200 & 233MHz MMX ; K6 supported

**SYSTEM MEMORY**  
DRAM FPM or EDO : 8 to 512MB ; 72-pin SIMMs on up to four 72-pin SIMMs  
L2 Cache : 256KB (standard) or 512KB (option) ; pipeline burst ; 512MB cacheability  
Flash Disk : 2 or 4MB optional  
Silicon serial number ; 4KB serial NOVRAM

**BUS INTERFACE**  
PICMG : PCI rev 2.1 compliant ; ISA : drives up to 20 slots ; IBM PC/AT mechanical format

**DATA PATH**  
64-bit on CPU bus ; 32-bit on PCI bus ; 16-bit on ISA bus

**VIDEO**  
Chips & Tech 65550 graphics processor ; 2MB video memory  
Resolutions: up to 1280x1024x256 colors (CRT) ; up to 1024x728x64K colors (Flat Panel)  
64-bit graphics engine with BitBLT ; Simultaneous CRT / Flat Panel  
Asynchronous Digital Video Port interface

**I/O**  
SERIAL : two RS-232 ports configurable as COM1-4 with RS-485 available on COM2  
PARALLEL : 1 bi-directional port (LPT1) with PCXT, AT, PS/2, EPP and ECP modes  
HARD DISK : 2 channel PCI EIDE ; drive up to 4 hard disks  
FLOPPY DISK : interface for 2 1.44 or 2.88MB floppy drives

**SCSI**  
Symbios, RISC Engine (53C860) ; Active terminations ; PCI Ultra SCSI, 8-bit bus ;  
Synchronous transfers up to 20MB/s ; Asynchronous transfers up to 10MB/s  
PCI Rev. 2.1 compliant bus master ; SCSI BIOS boot capable

**ETHERNET**  
Intel 82557 10/100Bas e-T ; PCI Rev. 2.1 compliant bus master

**POWER SUPPLY**  
VOLTAGE : +5V ±5% ; +12V ±5% CURRENT : IPP@ +12V : 76mA

ICC @ +5V	PENTIUM				PENTIUM MMX				
Proc. Speed	100MHz	120MHz	133MHz	150MHz	166MHz	200MHz	166MHz	200MHz	233MHz
ICC typ.	3.80A	3.90A	4.00A	4.10A	4.50A	4.75A	4.51A	4.70A	4.91A
ICC Susp.	2.00A	2.00A	2.00A	2.00A	2.00A	2.00A	2.41A	2.44A	2.48A
Setup	16MB DRAM, 512KB cache, 2MB Video DRAM, SCSI, Ethernet, keyboard, floppy and hard disks								

**OPERATING CONDITIONS**  
0°C to 62°C ; Tcase : 70° ; R.H. : 5% ; MTBF : > 128,000 hours (MIL-HDBK-217F)

**ELECTRICAL / MECHANICAL**  
Board dimensions : 4.8in. by 13.33in. / 121.9mm by 338.5mm  
Conforms to IEEE P996 PC/AT bus spec. ; PCI Rev.2.1 spec. ; PICMG Rev.2.0

**Contact TEKNOR INC. for Technical Support**

1. Tel : (800) 354-4223  
2. Fax : (450) 437-8053  
3. Internet : www.teknor.com  
4. E-Mail : support@teknor.com

The Technical Reference Manual can be downloaded from TEKNOR WEB site at [www.teknor.com](http://www.teknor.com)  
To order Technical Reference Manual hard copy please contact Customer Service Department at (450) 437-5682