

ENDAT-586NL

ENDAT-586CL

All-In-One Mainboard

User's Manual

ENDAT-586NL/ENDAT-586CL System
Rev. 2A

(For PCB 586NL Rev. 2A / 586CL Rev. 2A)

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Installation Notice

The manufacturer recommends using a grounded plug to ensure proper motherboard operation. Care should be used in proper conjunction with a grounded power receptacle to avoid possible electrical shock. All integrated circuits on this motherboard are sensitive to static electricity. To avoid damaging components from electrostatic discharge, please DO NOT remove the board from the anti-static packing before discharging any static electricity to your body by

wearing a wrist-grounding strap. The manufacturer is not responsible for any damage to the motherboard due to improper operation.

Manufacturer Notice (IMPORTANT)

This manual covers two different layout model of Pentium with LAN adapter All-In-One motherboards that is manufactured currently offer to market. The respective board layout outlines are shown on Chapter 1-4a/1-4b. Please refer to the following description to make sure which model you have before using.

ENDAT-59NL/CL

586 AGP-BUS All-In-One Mother Board Specification

| MODEL | | ENDAT-586NL | ENDAT-586CL |
|------------------------------|------------------------------|---------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------|
| CPU | | Pentium 75-400, Intel MMX, AMD K5/K6 /K6-2/K6-3, Rise MP6, IDT C6, IBM/Cyrix 6x86 CPU | |
| ZIF Socket | | Yes | |
| System Chipset (100MHz) | | VIA MVP3 598MVP + 586B | |
| System BIOS | | Award (2Mbits Flash ROM) | |
| VGA Chipset | | Trindent9750 AGP1 | Cirrus GD54M40 PCI |
| LAN Chipset 10/100 Base T | | Intel 21143 | |
| FLASH Disk | | DiskOnChip from 2MB to 144MB | |
| System Memory | | Up to 256MB | |
| Video RAM | | 2MB to 4MB SG-RAM | 512KB to 2MB |
| VGA Feature Connector | | Yes | |
| IDE Interface | | Ultra DMA33 | |
| IrDA Port, USB Port | | Yes | |
| Multi I/O Chipset | | Winbond 83877TF Support 4 Serials/1 Parallel Ports Serial Port with +5V/+12V Power | |
| +5V/+12V for COM Ports | | Yes | |
| External Cache | | 512KB Burst Cache | |
| Expansion Slot | | Extension for PCI/ISA Bus | |
| Max. PCI Slot on Riser Card: | PCI1 PCI2 PCI3 PCI4 | AD23 (INT. A,B,C,D)FREE AD22 (INT. B,C,D,A)FREE AD21 (INT. C,D,A,B)FREE AD24 (INT. D,A,B,C)LAN | AD23 (INT. A,B,C,D)FREE AD22 (INT. B,C,D,A)FREE AD21 (INT. C,D,A,B)VGA AD24 (INT. D,A,B,C)LAN |
| 586NL: 3 PCI | | | |
| 586CL: 3 PCI | | | |
| Location of Expansion Slot | | On the 7 th of Standard MB | |
| Keyboard Jack | | Two Mini Din Jack | |
| PS/2 Mouse Pin Header | | Yes | |
| VGA/Multi I/O Pin Header | | Yes | |
| RAM Socket | | 168pin DIMM x 2 (66/100 DIMMs) | |
| Remote Ring Detect | | Yes | |
| ATX Power Connector | | Yes | |
| Form Factor | | WD/LPX – 4 Layers | |
| Board Size | | 220 x 250 mm (8.66" x 9.84") | |

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ENDAT-59NL/CL

Chapter 1. Introduction

The ENDAT-586NL/586CL All-In-One motherboard use VIA Apollo MVP3 chipset, built-in Trident 3Dimage 9750 chipset for model of 586NL and Cirrus GD54M40 chipset for Model of 586CL, Intel 21143 LAN chipset with RJ45 Jack for 10BaseT/100BaseT and DiskOnChip socket on board. Our boards offer the highest performance PC specification in the industry. The ENDAT-586NL/586CL run with the Intel Pentium P54C/P55C, AMD K5/K6, K6-2/K6-3, Rise MP6, IDT C6, IBM/Cyrix 6x86 CPU upto 400MHz.

The motherboard is fully compatible with industry standards adding many technical enhancements and is fully compatible with thousands of software applications developed for IBM PC/AT compatible computers. The control logic provides high-speed performance for the most advanced multi-user, multitasking applications available today. Tomorrow PC technology is here today.

1-1. Feature

- Support for P54/P55C CPUs, AMD K5/K6, K6-2, K6-3, IDT C6, Rise MP6, IBM/Cyrix 6x86 CPUs Clock base on 60MHz – 100MHz running at 75MHz – 400MHz
 - Support for socket 7 for upgrading
 - Support separately powered 3.3V (5V tolerant) interfaces to system memory, PCI BUS
 - PC-97 compatible using VT82C598MVP single-chip socket-7 north bridge with AGP and PCI, plus Advanced ECC memory Controller and support for SDRAM, EDO and FPM
 - Support maximum 512K pipeline burst SRAM cache
 - Single chip implementation for 64bit Socket-7 CPU, 64bit system memory and 32bit AGP interfaces
 - Supports up to 256MB memory with two 168 pins DIMM socket (PC-100 DIMM)
 - Support “Plug-Play” functions
 - On board built-in PCI BUS master IDE controller, and floppy controller
 - Onboard socket for DiskOnChip support M-Systems products up to 144MB
 - Onboard LAN Adapter, support 10BaseT/100BaseT, (OnBoard) Boot ROM optional
 - Support for 4 COM Ports, STD RI(RS-232) +12V/+5V DC Power selectable and one SPP/EPP/ECP Parallel port
 - Supports Ultra DMA33 EIDE
 - Support up to Mode 4 hard disk drives
 - Onboard support for 4 high-speed UARTS (W/16550 FIFO) and multi-mode
-

- Parallel port for standards, enhanced (EPP) and high-speed (ECP) mode
- Onboard built-in USB functions
- Onboard built-in AGP BUS VGA adapter with Trident 9750 chipset for 586NL and Built-in PCI Bus VGA adapter with Cirrus GD54M40 for 586CL
- Supports 2MB/4MB SGRAM for model 586NL and 512K/2MB Video RAM for model 586CL
- 188pin expansion slot for both PCI and ISA BUS signals
- AWARD BIOS FLASH ROM (2Mbits)
- Hardware “Green” function support
- IR function can be Enabled/Disabled by BIOS
- Onboard LAN adapter, Video adapter can be Enabled/Disabled by jumper settings

1-2. Unpacking

The motherboard comes securely packaged in a sturdy cardboard shipping carton. In addition to the User's Manual, the motherboard package includes the following items.

- ENDAT-586NL/586CL All-In-One Motherboard
- HDC/FDC Cables, COM Ports Cable
- IDE Driver includes: drivers for Windows 3.1, Windows NT 3.x/4.x, Windows 95, OS/2, Novell Netware and AWARD FLASH ROM utilities
- VGA utilities and software drivers
- Driver utilities for LAN adapter

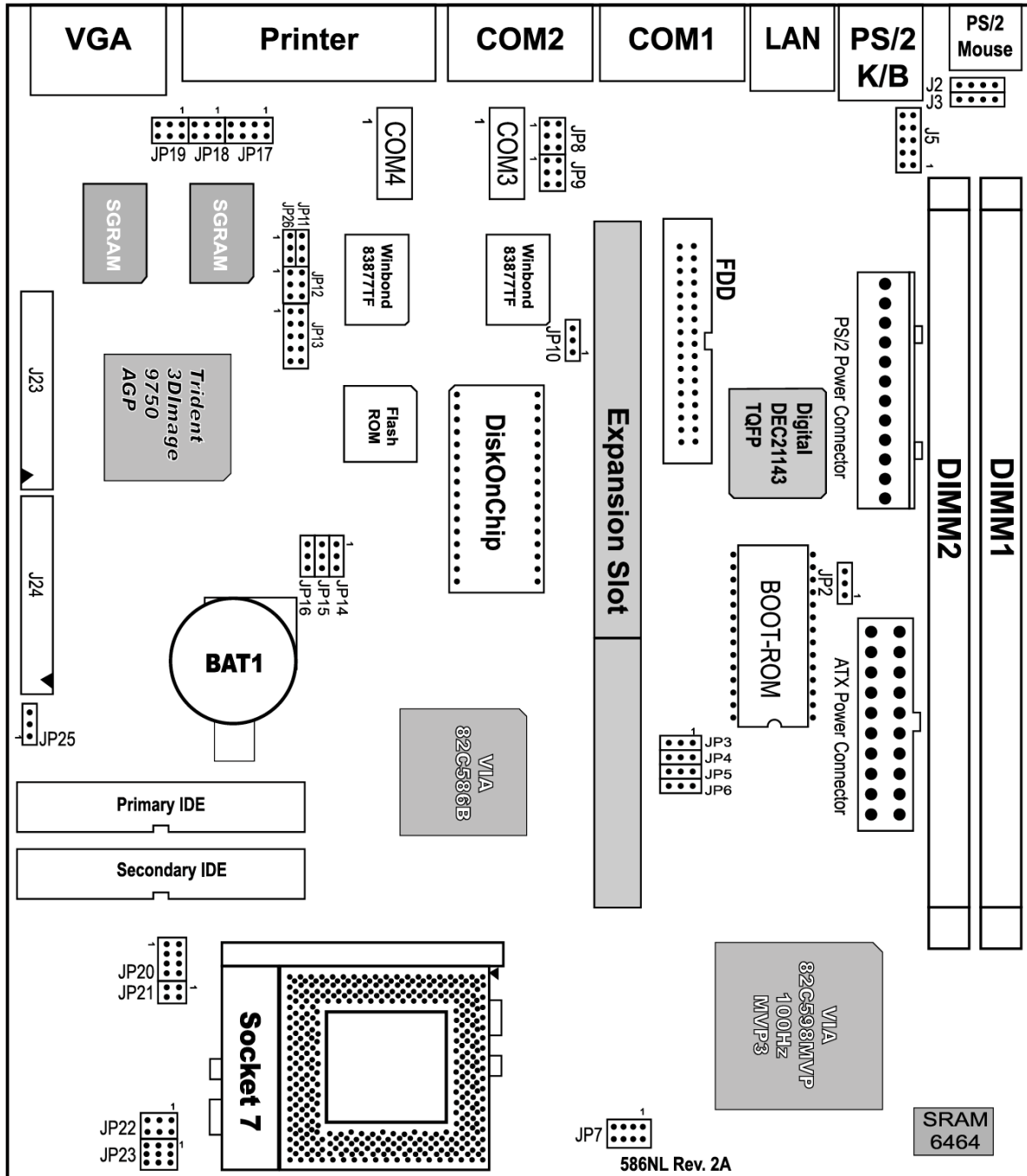
If any of these items are missed or damaged, please contact the dealer from whom you purchased the motherboard. Save the shipping materials and carton in the event that you want to ship or store the board in the future.

Note: Leave the motherboard in its original packing until you are ready to install it!

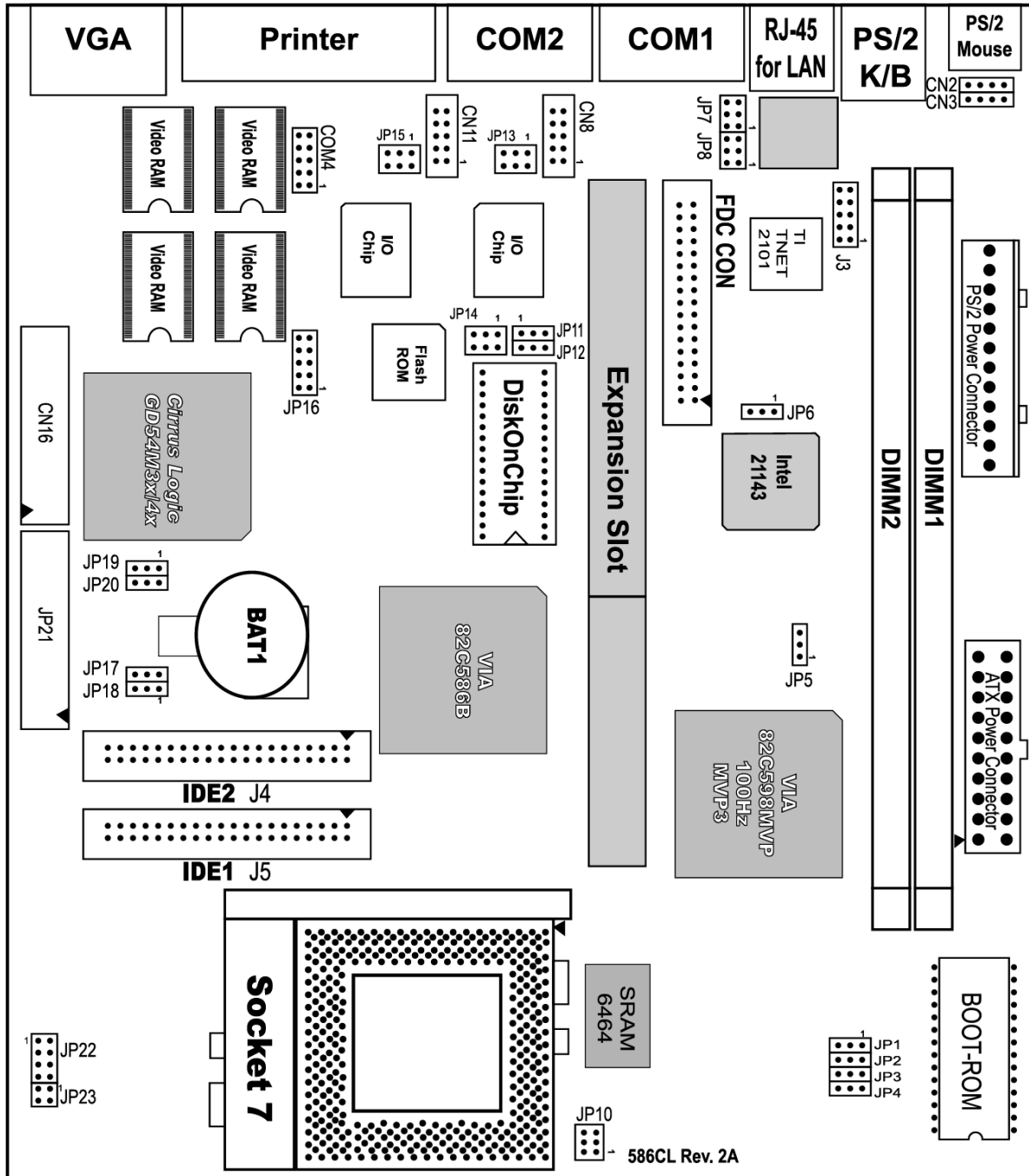
1-3. Electrostatic Discharge Precautions

Make sure you properly ground yourself before handling the motherboard or other system components. Electrostatic discharge can easily damage the components. Note: You must take special precaution when handling the motherboard in dry or air-conditioned environments.

1-4a. Motherboard Layout (586NL)



1-4b. Motherboard Layout (586CL)



Chapter 2. *Setting Up the Motherboard*

This chapter describes getting your motherboard ready for operations.

- Installing a CPU upgrade, make sure the correct CPU operating voltage, jumper settings and frequency.
- Installing DIMM memory.
- Double-check the insertion and orientation of the CPU before applying power. Improper installation will result in permanent damage to the CPU

2-1 ENDAT-586NL Jumpers and Connectors

Jumpers/Connectors Overview:

| Function | Jumpers |
|-----------------------------|----------------------|
| CPU: CPU Clock Frequency | JP4, JP5, JP6 |
| CPU Ratio | JP22 |
| CPU V-I/O Voltage | JP21 |
| CPU Vcore Voltage | JP20 |
| CPU Clock Strapping | JP23 |
| Power for CPU Cooling Fan | JP14 |
| Power Supply: Type (AT/ATX) | JP2 |
| ATX Power on/off Switch | J24 Pin13, Pin15 |
| Power Good | JP25 |
| VGA Adapter Disable/Enable | JP15 |
| LAN Adapter Disable/Enable | JP10 |
| COM Ports Power Selector | JP8, JP9, JP18, JP19 |
| COM3/COM4 IRQ | JP11, JP26 |
| DiskOnChip Memory Address | JP13 |
| SDRAM Sync. Mode Selector | JP3 |
| Clear CMOS | JP16 |
| FLASH ROM Select | JP12 |
| PS/2 Keyboard Header | J2 |
| PS/2 Mouse Header | J3 |
| IR | JP17 |
| USB Header | J5 |
| Header for Panel | J24 |
| Modem Ring Detect | J24 Pin21, Pin23 |
| Hard Disk LED | J24 Pin12, Pin14 |

| Function | Jumpers |
|-------------------------------|----------------------------|
| Hardware Reset Switch | J24 Pin18, Pin20 |
| External Speaker | J24 Pin2, Pin4, Pin6, Pin8 |
| Power LED / Key lock | J24 Pin1, 3, 5, 7, 9 |
| Doze LED | J24 Pin17, Pin19 |
| Buzzer On/Off | J24 Pin25, Pin26 |
| Turbo LED for Case Panel only | J24 Pin22, Pin24 |

Note: The cooling fan and heat sink are required for Pentium processors. Please pay attention to the direction of CPU cooling fan during installation. Position the cooling ventilator directly facing the regulator heat sink, which is located beside the CPU socket. This will reduce the overheating of regulator and help the reliability of system.

JP3: SDRAM Sync. Mode Selector

| | |
|---------|--------|
| Pin 1-2 | PC-100 |
| Pin 2-3 | 66MHz |

JP4, JP5, JP6: CPU Clock Frequency Selector

| JP4 | JP5 | JP6 | CPU Clock | AGP Clock | PCI Clock |
|-----|-----|-----|-----------|-----------|-----------|
| 2-3 | 2-3 | 2-3 | 60.0MHz | 60.0MHz | 30.0MHz |
| 2-3 | 2-3 | 1-2 | 66.8MHz | 66.8MHz | 33.4MHz |
| 2-3 | 1-2 | 2-3 | 68.5MHz | 68.5MHz | 34.2MHz |
| 2-3 | 1-2 | 1-2 | 75.0MHz | 60.0MHz | 30.0MHz |
| 1-2 | 2-3 | 1-2 | 83.3MHz | 66.6MHz | 33.3MHz |
| 1-2 | 1-2 | 2-3 | 95.2MHz | 63.5MHz | 31.8MHz |
| 1-2 | 1-2 | 1-2 | 100MHz | 66.6MHz | 33.3MHz |

JP20: CPU Vcore Voltage Selector

| 1-2 | 3-4 | 5-6 | 7-8 | Vcore |
|-------|-------|-------|-------|-------|
| Short | Short | Short | Short | 3.5V |
| Short | Short | Short | Open | 3.4V |
| Short | Short | Open | Short | 3.3V |
| Short | Short | Open | Open | 3.2V |
| Short | Open | Short | Short | 3.1V |
| Short | Open | Short | Open | 3.0V |
| Short | Open | Open | Short | 2.9V |
| Short | Open | Open | Open | 2.8V |
| Open | Short | Short | Short | 2.7V |
| Open | Short | Short | Open | 2.6V |
| Open | Short | Open | Short | 2.5V |
| Open | Short | Open | Open | 2.4V |
| Open | Open | Short | Short | 2.3V |
| Open | Open | Short | Open | 2.2V |
| Open | Open | Open | Short | 2.1V |
| Open | Open | Open | Open | 2.0V |

JP21: CPU V-I/O Voltage Selector

| JP21 | V-I/O |
|---------------|-------|
| Open All | 3.3V |
| Close 1-3/2/4 | 3.45V |

JP22: CPU Frequency Ratio Setting

| Pin 1-2 (BF0) | Pin 3-4 (BF1) | Pin 5-6 (BF2) | CPU Ratio |
|------------------|------------------|------------------|-------------|
| Short | Short | Open | 2.5x |
| Open | Short | Open | 3.0x |
| Short | Open | Open | 2.0x |
| Open | Open | Open | 1.5x / 3.5x |
| Short | Short | Short | 4.5x |
| Open | Short | Short | 5.0x |
| Short | Open | Short | 4.0x |
| Open | Open | Short | 5.5x |

JP23: CPU Clock Strapping Selector

| | Pin 1-2-3 | Pin 4-5-6 | Pin 7-8-9 | CPU Ratio |
|-------|-----------|-----------|-----------|---------------------|
| Short | 1-2 | 5-6 | 7-8 | 60MHz, 66MHz, 75MHz |
| Short | 2-3 | 4-5 | 8-9 | 100MHz |

AMD

| Processor | F/R | VC | Frequency | | | JP22 CPU Ratio | | | JP23 | | | JP20 Vcore Voltage | | | |
|-----------|---------|-----|-----------|-----|-----|-------------------|-----|-----|-------|-------|-------|-----------------------|-----|-----|-----|
| | | | JP4 | JP5 | JP6 | 1-2 | 3-4 | 5-6 | 1-2-3 | 4-5-6 | 7-8-9 | 1-2 | 3-4 | 5-6 | 7-8 |
| K5-133 | 66*2.0 | 2.8 | 2-3 | 2-3 | 1-2 | S | O | O | 1-2 | 5-6 | 7-8 | S | O | O | O |
| K5-166 | 66*2.5 | 2.8 | 2-3 | 2-3 | 1-2 | S | S | O | 1-2 | 5-6 | 7-8 | S | O | O | O |
| K6-166 | 66*2.5 | 2.9 | 2-3 | 2-3 | 1-2 | S | S | O | 1-2 | 5-6 | 7-8 | S | O | O | S |
| K6-200 | 66*3.0 | 2.9 | 2-3 | 2-3 | 1-2 | O | S | O | 1-2 | 5-6 | 7-8 | S | O | O | S |
| K6-233 | 66*3.5 | 3.2 | 2-3 | 2-3 | 1-2 | O | O | O | 1-2 | 5-6 | 7-8 | S | S | O | O |
| K6-266 | 66*4.0 | 2.2 | 2-3 | 2-3 | 1-2 | S | O | S | 1-2 | 5-6 | 7-8 | O | O | S | O |
| K6-300 | 66*4.5 | 2.2 | 2-3 | 2-3 | 1-2 | S | S | S | 1-2 | 5-6 | 7-8 | O | O | S | O |
| K6-300 | 66*4.5 | 2.1 | 2-3 | 2-3 | 1-2 | S | S | S | 1-2 | 5-6 | 7-8 | O | O | O | S |
| K6-2-300 | 66*4.5 | 2.2 | 2-3 | 2-3 | 1-2 | S | S | S | 1-2 | 5-6 | 7-8 | O | O | S | O |
| K6-2-300 | 100*3.0 | 2.2 | 1-2 | 1-2 | 1-2 | O | S | O | 2-3 | 4-5 | 8-9 | O | O | S | O |
| K6-2-350 | 100*3.5 | 2.2 | 1-2 | 1-2 | 1-2 | O | O | O | 2-3 | 4-5 | 8-9 | O | O | S | O |
| K6-2-380 | 95*4.0 | 2.2 | 1-2 | 1-2 | 2-3 | S | O | S | 1-2 | 5-6 | 7-8 | O | O | S | O |
| K6-2-400 | 100*4.0 | 2.2 | 1-2 | 1-2 | 1-2 | S | O | S | 2-3 | 4-5 | 8-9 | O | O | S | O |

Intel

| Processor | F/R | VC | Frequency | | | JP22 CPU Ratio | | | JP23 | | | JP20 Vcore Voltage | | | |
|----------------|--------|-----|-----------|-----|-----|-------------------|-----|-----|-------|-------|-------|-----------------------|-----|-----|-----|
| | | | JP4 | JP5 | JP6 | 1-2 | 3-4 | 5-6 | 1-2-3 | 4-5-6 | 7-8-9 | 1-2 | 3-4 | 5-6 | 7-8 |
| Pentium-133 | 66*2.0 | 2.8 | 2-3 | 2-3 | 1-2 | S | O | O | 1-2 | 5-6 | 7-8 | S | O | O | O |
| Pentium-150 | 60*2.5 | 2.8 | 2-3 | 2-3 | 2-3 | S | S | O | 1-2 | 5-6 | 7-8 | S | O | O | O |
| Pentium-166 | 66*2.5 | 2.7 | 2-3 | 2-3 | 1-2 | S | S | O | 1-2 | 5-6 | 7-8 | O | S | S | S |
| Pentium-180 | 60*3.0 | 2.8 | 2-3 | 2-3 | 2-3 | O | S | O | 1-2 | 5-6 | 7-8 | S | O | O | O |
| Pentium-200 | 66*3.0 | 2.7 | 2-3 | 2-3 | 1-2 | O | S | O | 1-2 | 5-6 | 7-8 | O | S | S | S |
| Pentium-166MMX | 66*2.5 | 2.8 | 2-3 | 2-3 | 1-2 | S | S | O | 1-2 | 5-6 | 7-8 | S | O | O | O |
| Pentium-200MMX | 66*3.0 | 2.8 | 2-3 | 2-3 | 1-2 | O | S | O | 1-2 | 5-6 | 7-8 | S | O | O | O |
| Pentium-233MMX | 66*3.5 | 2.8 | 2-3 | 2-3 | 1-2 | O | O | O | 1-2 | 5-6 | 7-8 | S | O | O | O |

IBM/Cyrix

| Processor | F/R | VC | Frequency | | | JP22 CPU Ratio | | | JP23 | | | JP20 Vcore Voltage | | | |
|------------------|--------|------|----------------|-----|-----|-------------------|-----|-----|-------|-------|-------|-----------------------|-----|-----|-----|
| | | | JP4 | JP5 | JP6 | 1-2 | 3-4 | 5-6 | 1-2-3 | 4-5-6 | 7-8-9 | 1-2 | 3-4 | 5-6 | 7-8 |
| | | | IBM CPU | | | | | | | | | | | | |
| 6x86L-P166 | 66*2.0 | 2.82 | 2-3 | 2-3 | 1-2 | S | O | O | 1-2 | 5-6 | 7-8 | S | O | O | O |
| 6x86M-PR200 | 66*2.5 | 2.9 | 2-3 | 2-3 | 1-2 | S | S | O | 1-2 | 5-6 | 7-8 | S | O | O | S |
| 6x86M-PR233 | 75*2.5 | 2.9 | 2-3 | 1-2 | 1-2 | S | S | O | 1-2 | 5-6 | 7-8 | S | O | O | S |
| 6x86M-PR266 | 83*2.5 | 2.9 | 1-2 | 2-3 | 1-2 | S | S | O | 1-2 | 5-6 | 7-8 | O | O | O | S |
| 6x86M-PR300 | 75*3.0 | 2.9 | 2-3 | 1-2 | 1-2 | O | S | O | 1-2 | 5-6 | 7-8 | S | O | O | S |
| ST 6x86M-P166 | 66*2.0 | 3.52 | 2-3 | 2-3 | 1-2 | S | O | O | 1-2 | 5-6 | 7-8 | O | S | S | S |
| Cyrix CPU | | | | | | | | | | | | | | | |
| 6x86-P166 | 66*2.0 | 3.52 | 2-3 | 2-3 | 1-2 | S | O | O | 1-2 | 5-6 | 7-8 | S | S | S | S |
| 6x86L-PR166 | 66*2.0 | 3.52 | 2-3 | 2-3 | 1-2 | S | O | O | 1-2 | 5-6 | 7-8 | S | S | S | S |
| 6x86-PR200 | 66*2.5 | 2.9 | 2-3 | 2-3 | 1-2 | S | S | O | 1-2 | 5-6 | 7-8 | S | O | O | S |
| 6x86MX-PR233 | 75*2.5 | 2.9 | 2-3 | 1-2 | 1-2 | S | S | O | 1-2 | 5-6 | 7-8 | S | O | O | S |
| 6x86MX-PR266 | 83*2.5 | 2.9 | 1-2 | 2-3 | 1-2 | S | S | O | 1-2 | 5-6 | 7-8 | S | O | O | S |
| M2-233 | 75*2.5 | 2.9 | 2-3 | 1-2 | 1-2 | S | S | O | 1-2 | 5-6 | 7-8 | S | O | O | S |
| M2-300 | 75*3.0 | 2.9 | 2-3 | 1-2 | 1-2 | O | S | O | 1-2 | 5-6 | 7-8 | S | O | O | S |
| M2-333 | 83*4.0 | | | | | | | | | | | | | | |

Win Chip

| Processor | F/R | VC | Frequency | | | JP22 CPU Ratio | | | JP23 | | | JP20 Vcore Voltage | | | |
|-----------|--------|------|-----------|--------|------|-------------------|-----|-----|-------|-------|-------|-----------------------|-----|-----|-----|
| | | | JP4 | JP5 | JP6 | 1-2 | 3-4 | 5-6 | 1-2-3 | 4-5-6 | 7-8-9 | 1-2 | 3-4 | 5-6 | 7-8 |
| | | | IDT-200 | 66*3.0 | 3.52 | 2-3 | 2-3 | 1-2 | O | S | O | 1-2 | 5-6 | 7-8 | S |
| IDT-225 | 75*3.0 | 3.52 | 2-3 | 1-2 | 1-2 | O | S | O | 1-2 | 5-6 | 7-8 | S | S | S | S |
| IDT-240 | 60*4.0 | 3.52 | 2-3 | 2-3 | 2-3 | S | O | S | 1-2 | 5-6 | 7-8 | S | S | S | S |

JP2: Power Supply Type Selector

| | |
|---------|-----------|
| Pin 1-2 | AT Power |
| Pin 2-3 | ATX Power |

JP9, JP8, JP19, JP18: DC Power Selector for COM Port

| | | | |
|-------------|-------------|-----------|-----------|
| COM 1: JP9 | Standard RI | +12V | +5V |
| COM 2: JP8 | | | |
| COM 3: JP19 | Close 3-4 | Close 1-2 | Close 5-6 |
| COM 4: JP18 | | | |

Note: If user change COM3/COM4 to COM1/COM2, please disable COM1/COM2 at BIOS setting or the hardware will be conflicted

Note: Please make sure your device voltage before using or it may burn out your external device when wrong voltage is chosen.

JP11, JP26: COM3/COM4 IRQ Selector

| | | | |
|------|------|------|-------|
| JP11 | COM3 | JP26 | COM4 |
| 1-2 | IRQ5 | 1-2 | IRQ4 |
| 2-3 | IRQ3 | 2-3 | IRQ10 |

Note: If change COM3/COM4 IRQ hardware setting, the BIOS setting must be followed the setting as well or the I/O will be conflicted.

JP10: LAN Disable/Enable

| | |
|---------|----------|
| Pin 1-2 | Enabled |
| Pin 2-3 | Disabled |

JP12: Flash ROM Selector

| | |
|---------|-------------------------|
| Pin 3-5 | 1MB Flash ROM |
| Pin1-3 | 2MB Flash ROM (default) |
| Pin 2-4 | 5V Flash ROM |
| Pin 4-6 | 12V Flash ROM |

JP13: DiskOnChip Memory Address Selector

| | |
|------------|------------------------|
| JP13 | Memory Address |
| 1-2 / 7-8 | 0C800H-0C9FFH |
| 1-2 / 9-10 | 0CC00H-0CDFFH |
| 3-4 / 7-8 | 0DCCCH-0D1FFH |
| 3-4 / 9-10 | 0D400H-0D5FFH |
| 5-6 / 7-8 | 0D800H-0D9FFH |
| 5-6 / 9-10 | 0DC00H-0DDFFH(Default) |

JP14: CPU Cooling Fan Power Selector

| | |
|----------|--------|
| Pin 1, 3 | Ground |
| Pin 2 | +12V |

Note: Without a CPU cooling fan, the CPU could be overheat and cause damage to both the CPU and motherboard.

JP15: VGA Disable/Enable

| | |
|---------|-------------|
| Pin 1-2 | VGA Enable |
| Pin 2-3 | VGA Disable |

JP16: CMOS Data Clear

| | |
|---------|-----------------|
| Pin 1-2 | Normal |
| Pin 2-3 | Clear CMOS Data |

JP25: Power Good Source Selector

| | |
|---------|---------------------|
| Pin 1-2 | Internal Power Good |
| Pin 2-3 | External Power Good |

J5: USB Header (for USB1, USB2)

| PIN | Description |
|-------|----------------|
| 1, 2 | USB VCC |
| 3, 4 | USB DATA-(0,1) |
| 5, 6 | USB DATA+(0,1) |
| 7, 8 | USB GND |
| 9, 10 | USB GND |

J24: Header for Panel

| PIN | Description |
|---------------|----------------------------------------------|
| 1, 3, 5, 7, 9 | Power LED / Key - Lock |
| 13, 15 | ATX-Power on/off Switch |
| 17, 19 | Doze-LED |
| 21, 23 | Modem Ring-detect |
| 2, 4, 6, 8 | External Speaker |
| 12, 14 | Harddisk Active LED |
| 18, 20 | Hardware Rest Switch |
| 22, 24 | Turbo-LED (for case panel only, no function) |
| 25, 26 | On-board Buzzer on/off Switch (Default: on) |

2-2 ENDAT-586CL Jumpers and Connectors

Jumpers/Connectors Overview:

| Function | Jumpers |
|-------------------------------|-----------------------------|
| CPU: CPU Clock Frequency | JP1, JP2, JP3 |
| CPU Ratio | JP10 |
| CPU V-I/O Voltage | JP23 |
| CPU Vcore Voltage | JP22 |
| Power for CPU Cooling Fan | JP20 |
| Power Supply: Type (AT/ATX) | JP5 |
| ATX Power on/off Switch | JP21 Pin13, Pin15 |
| Power Good | JP18 |
| VGA Adapter Disable/Enable | JP19 |
| LAN Adapter Disable/Enable | JP6 |
| COM Ports Power Selector | JP8, JP7, JP15, JP13 |
| COM3/COM4 IRQ | JP11, JP12 |
| DiskOnChip Memory Address | JP16 |
| SDRAM Sync. Mode Selector | JP4 |
| Clear CMOS | JP17 |
| FLASH ROM Select | JP14 |
| PS/2 Keyboard Header | CN2 |
| PS/2 Mouse Header | CN3 |
| IR | CN14 |
| USB Header | J3 |
| Header for Panel | JP21 |
| Modem Ring Detect | JP21 Pin21, Pin23 |
| Hard Disk LED | JP21 Pin12, Pin14 |
| Hardware Reset Switch | JP21 Pin18, Pin20 |
| External Speaker | JP21 Pin2, Pin4, Pin6, Pin8 |
| Power LED / Key lock | JP21 Pin1, 3, 5, 7, 9 |
| Doze LED | JP21 Pin17, Pin19 |
| Buzzer On/Off | JP21 Pin25, Pin26 |
| Turbo LED for Case Panel only | JP21 Pin22, Pin24 |

Note: The cooling fan and heat sink are required for Pentium processors. Please pay attention to the direction of CPU cooling fan during installation. Position the cooling ventilator directly facing the regulator heat sink that is located beside the CPU socket. This will reduce the overheating of regulator and help the reliability of system.

JP4: DIMM Clock Strapping

| | |
|---------|--------|
| Pin 1-2 | PC-100 |
| Pin 2-3 | 66MHz |

JP1, JP2, JP3: CPU Clock Frequency Selector

| JP1 | JP2 | JP3 | CPU Clock | AGP Clock | PCI Clock |
|-----|-----|-----|-----------|-----------|-----------|
| 2-3 | 2-3 | 2-3 | 60.0MHz | 60.0MHz | 30.0MHz |
| 2-3 | 2-3 | 1-2 | 66.8MHz | 66.8MHz | 33.4MHz |
| 2-3 | 1-2 | 2-3 | 68.5MHz | 68.5MHz | 34.2MHz |
| 2-3 | 1-2 | 1-2 | 75.0MHz | 60.0MHz | 30.0MHz |
| 1-2 | 2-3 | 1-2 | 83.3MHz | 66.6MHz | 33.3MHz |
| 1-2 | 1-2 | 2-3 | 95.2MHz | 63.5MHz | 31.8MHz |
| 1-2 | 1-2 | 1-2 | 100MHz | 66.6MHz | 33.3MHz |

JP22: CPU Vcore Voltage Selector

| 1-2 | 3-4 | 5-6 | 7-8 | Vcore |
|-------|-------|-------|-------|-------|
| Short | Short | Short | Short | 3.5V |
| Short | Short | Short | Open | 3.4V |
| Short | Short | Open | Short | 3.3V |
| Short | Short | Open | Open | 3.2V |
| Short | Open | Short | Short | 3.1V |
| Short | Open | Short | Open | 3.0V |
| Short | Open | Open | Short | 2.9V |
| Short | Open | Open | Open | 2.8V |
| Open | Short | Short | Short | 2.7V |
| Open | Short | Short | Open | 2.6V |
| Open | Short | Open | Short | 2.5V |
| Open | Short | Open | Open | 2.4V |
| Open | Open | Short | Short | 2.3V |
| Open | Open | Short | Open | 2.2V |
| Open | Open | Open | Short | 2.1V |
| Open | Open | Open | Open | 2.0V |

JP23: CPU V-I/O Voltage Selector

| JP23 | V-I/O |
|---------------|-------|
| Open All | 3.3V |
| Close 1-3/2/4 | 3.45V |

JP10: CPU Frequency Ratio Setting

| Pin 1-2 (BF0) | Pin 3-4 (BF1) | Pin 5-6 (BF2) | CPU Ratio |
|---------------|---------------|---------------|-------------|
| Short | Short | Open | 2.5x |
| Open | Short | Open | 3.0x |
| Short | Open | Open | 2.0x |
| Open | Open | Open | 1.5x / 3.5x |
| Short | Short | Short | 4.5x |
| Open | Short | Short | 5.0x |
| Short | Open | Short | 4.0x |
| Open | Open | Short | 5.5x |

AMD

| Processor | F/R | VC | Frequency | | | JP10 CPU Ratio | | | JP22 Vcore Voltage | | | |
|-----------|---------|-----|-----------|-----|-----|-------------------|-----|-----|-----------------------|-----|-----|-----|
| | | | JP1 | JP2 | JP3 | 1-2 | 3-4 | 5-6 | 1-2 | 3-4 | 5-6 | 7-8 |
| K5-133 | 66*2.0 | 2.8 | 2-3 | 2-3 | 1-2 | S | O | O | S | O | O | O |
| K5-166 | 66*2.5 | 2.8 | 2-3 | 2-3 | 1-2 | S | S | O | S | O | O | O |
| K6-166 | 66*2.5 | 2.9 | 2-3 | 2-3 | 1-2 | S | S | O | S | O | O | S |
| K6-200 | 66*3.0 | 2.9 | 2-3 | 2-3 | 1-2 | O | S | O | S | O | O | S |
| K6-233 | 66*3.5 | 3.2 | 2-3 | 2-3 | 1-2 | O | O | O | S | S | O | O |
| K6-266 | 66*4.0 | 2.2 | 2-3 | 2-3 | 1-2 | S | O | S | O | O | S | O |
| K6-300 | 66*4.5 | 2.2 | 2-3 | 2-3 | 1-2 | S | S | S | O | O | S | O |
| K6-300 | 66*4.5 | 2.1 | 2-3 | 2-3 | 1-2 | S | S | S | O | O | O | S |
| K6-2-300 | 66*4.5 | 2.2 | 2-3 | 2-3 | 1-2 | S | S | S | O | O | S | O |
| K6-2-300 | 100*3.0 | 2.2 | 1-2 | 1-2 | 1-2 | O | S | O | O | O | S | O |
| K6-2-350 | 100*3.5 | 2.2 | 1-2 | 1-2 | 1-2 | O | O | O | O | O | S | O |
| K6-2-380 | 95*4.0 | 2.2 | 1-2 | 1-2 | 2-3 | S | O | S | O | O | S | O |
| K6-2-400 | 100*4.0 | 2.2 | 1-2 | 1-2 | 1-2 | S | O | S | O | O | S | O |

Win Chip

| Processor | F/R | VC | Frequency | | | JP10 CPU Ratio | | | JP22 Vcore Voltage | | | |
|-----------|--------|------|-----------|--------|------|-------------------|-----|-----|-----------------------|-----|-----|-----|
| | | | JP1 | JP2 | JP3 | 1-2 | 3-4 | 5-6 | 1-2 | 3-4 | 5-6 | 7-8 |
| | | | IDT-200 | 66*3.0 | 3.52 | 2-3 | 2-3 | 1-2 | O | S | O | S |
| IDT-225 | 75*3.0 | 3.52 | 2-3 | 1-2 | 1-2 | O | S | O | S | S | S | S |
| IDT-240 | 60*4.0 | 3.52 | 2-3 | 2-3 | 2-3 | S | O | S | S | S | S | S |

JP5: Power Supply Type Selector

| | |
|---------|-----------|
| Pin 1-2 | AT Power |
| Pin 2-3 | ATX Power |

JP8, JP7, JP15, JP13: DC Power Selector for COM Port

| | | | |
|-------------|-------------|-----------|-----------|
| COM 1: JP8 | Standard RI | +12V | +5V |
| COM 2: JP7 | | | |
| COM 3: JP15 | Close 3-4 | Close 1-2 | Close 5-6 |
| COM 4: JP13 | | | |

Note: If user change COM3/COM4 to COM1/COM2, please disable COM1/COM2 at BIOS setting or the hardware will be conflicted

Note: Please make sure your device voltage before using or it may burn out your external device when wrong voltage is choose.

JP11, JP12: COM3/COM4 IRQ Selector

| JP11 | COM3 | JP12 | COM4 |
|------|------|------|-------|
| 1-2 | IRQ5 | 1-2 | IRQ4 |
| 2-3 | IRQ3 | 2-3 | IRQ10 |

Note: If change COM3/COM4 IRQ hardware setting, the BIOS setting must be followed the setting as well or the I/O will be conflict.

JP6: LAN Disable/Enable

| | |
|---------|----------|
| Pin 1-2 | Enabled |
| Pin 2-3 | Disabled |

JP14: Flash ROM Selector

| Pin No. | Pin No. | Voltage | Type | ROM Size |
|---------|---------|----------|---------|---------------|
| 1-3 | 2-4 | 5V Type | 29EE020 | 2MB Flash ROM |
| 3-5 | 2-4 | 5V Type | 29EE010 | 1MB Flash ROM |
| 1-3 | 4-6 | 12V Type | 28F002 | 2MB Flash ROM |
| 3-5 | 4-6 | 12V Type | 28F001 | 1MB Flash ROM |

JP16: DiskOnChip Memory Address Selector

| JP16 | Memory Address |
|------------|------------------------|
| 1-2 / 7-8 | 0C800H-0C9FFH |
| 1-2 / 9-10 | 0CC00H-0CDFFH |
| 3-4 / 7-8 | 0DCCCH-0D1FFH |
| 3-4 / 9-10 | 0D400H-0D5FFH |
| 5-6 / 7-8 | 0D800H-0D9FFH |
| 5-6 / 9-10 | 0DC00H-0DDFFH(Default) |

JP20: CPU Cooling Fan Power Selector

| | |
|----------|--------|
| Pin 1, 3 | Ground |
| Pin 2 | +12V |

Note: Without a CPU cooling fan, the CPU could be overheat and cause damage to both the CPU and motherboard.

JP19: VGA Disable/Enable

| | |
|---------|--------------|
| Pin 1-2 | VGA Enabled |
| Pin 2-3 | VGA Disabled |

JP17: CMOS Data Clear

| | |
|---------|-----------------|
| Pin 1-2 | Normal |
| Pin 2-3 | Clear CMOS Data |

JP18: Power Good Source Selector

| | |
|---------|---------------------|
| Pin 1-2 | Internal Power Good |
| Pin 2-3 | External Power Good |

J3: USB Header (for USB1, USB2)

| PIN | Description |
|-------|----------------|
| 1, 2 | USB VCC |
| 3, 4 | USB DATA-(0,1) |
| 5, 6 | USB DATA+(0,1) |
| 7, 8 | USB GND |
| 9, 10 | USB GND |

J21: Header for Panel

| PIN | Description |
|---------------|----------------------------------------------|
| 1, 3, 5, 7, 9 | Power LED / Key - Lock |
| 13, 15 | ATX-Power on/off Switch |
| 17, 19 | Doze-LED |
| 21, 23 | Modem Ring-detect |
| 2, 4, 6, 8 | External Speaker |
| 12, 14 | Harddisk Active LED |
| 18, 20 | Hardware Rest Switch |
| 22, 24 | Turbo-LED (for case panel only, no function) |
| 25, 26 | On-board Buzzer on/off Switch (Default: on) |

2-3. Installing Memory

The motherboard offers two 168pin DIMM sockets supporting up to 256MB of memory. The DIMM memory can be 66MHz or 100MHz (PC-100).

Please make sure both of JP3 (SDRAM Sync. Mode Selector) and JP23 (CPU Clock Strapping) are set at PC-100 DIMM when PC-100 DIMM memory be used on the model of 586NL.

2-4. VGA SG-DRAM/FP-DRAM Supporting

The 586NL supports 2MB to 4MB SGRAM and the 586CL supports 512KB to 2MB VGA RAM. The amount of video memory on your motherboard determines the numbers of color and the video graphic resolutions.

2-5. Installing Riser Card

586NL Installing Riser Card (Max. 3 PCI Slot on Riser Card)

| PCI Slot No. | ADSEL | INT | Remark |
|--------------|-------|---------|----------------------------------|
| PCI 1 | AD23 | A,B,C,D | Free |
| PCI 2 | AD22 | B,C,D,A | Free |
| PCI 3 | AD21 | C,D,A,B | Free |
| PCI 4 | AD24 | D,A,B,C | Occupied by On-board LAN Adapter |

586CL Installing Riser Card (Max. 2 PCI Slot on Riser Card)

| PCI Slot No. | ADSEL | INT | Remark |
|--------------|-------|---------|----------------------------------|
| PCI 1 | AD23 | A,B,C,D | Free |
| PCI 2 | AD22 | B,C,D,A | Free |
| PCI 3 | AD21 | C,D,A,B | Occupied by On-board VGA Adapter |
| PCI 4 | AD24 | D,A,B,C | Occupied by On-board LAN Adapter |

There are two different riser cards can be fitted to ENDAT-586NL/ENDAT-586CL All-In-One motherboard. The first one is 98pin ISA Bus riser card (traditional ISA Bus riser card), the second one is 188pins PCI/ISA riser card. Please noted: The jumper settings of PCI/ISA riser cards have to be matched with the motherboard AD select. The correct AD select for ENDAT-586NL/586CL All-In-One motherboard is listed on the above table.

Caution: Do not insert PCI Bus Add-On cards directly into the on-board expansion slot.

2-6. Assigning IRQs for Expansion Cards

Some expansion cards need to use an IRQ to operate. Generally, an IRQ must be exclusively assigned to one use. In a standard design, there are 16 IRQs available and most of them are already in used by parts of the system.

Both ISA and PCI expansion cards may need to use IRQs. System IRQs are available to cards installed in the ISA expansion Bus first. Any remaining IRQs then may be assigned to this PCI-Bus. You can use Microsoft's Diagnostic (MSD.EXE) utility included in the Windows directory to see their map. Make sure that there are no two devices using the same IRQs in the system. Otherwise this will cause the system hang up or give unexpected result. To simplify the process, this motherboard has complied with the Plug and Play (PnP) specification, which was developed to allow automatic system configuration. Whenever a PnP-compliant card is added to the system, PnP cards and IRQs are automatically assigned if available. If the system has both Legacy and PnP

ISA cards installed. IRQs are assigned to PnP cards from those not used by Legacy cards. The PCI and PnP configuration of the BIOS setup utility can be used to indicate which IRQs are being used by Legacy cards. For older Legacy cards that do not work with the BIOS, you can contact your vendor for an ISA configuration utility.

An IRQ number is automatically assigned to PCI expansion cards after those used by Legacy and PnP ISA cards. In the PCI Bus design, the BIOS is automatically assigned an IRQ to a PCI slot that has a card in it which requires an IRQ. To install a PCI card, you need to set the correct "ADSEL" and "INT" (interrupt) assignment. Please refer to "Chapter 2-5" Installing Riser Card for detail assignments.

| IRQ | Status | Assignment | IRQ | Status | Assignment |
|-----|--------|-----------------|-----|--------|------------------------|
| 0 | Used | Timer | 8 | Used | Clock |
| 1 | Used | Keyboard | 9 | Used | Redirected IRQ2 |
| 2 | Used | Second 8259 | 10 | Used | COM4 (Optional) |
| 3 | Used | COM2 | 11 | Used | LAN Adapter (on board) |
| 4 | Used | COM1 | 12 | Used | PS/2 Mouse |
| 5 | Used | COM3 (Optional) | 13 | Used | Coprocessor |
| 6 | Used | Floppy Disk | 14 | Used | Hard Disk (IDE 1) |
| 7 | Used | LPT1 | 15 | Used | Reserved (IDE 2) |

2-7. Assigning DMA Channels for ISA Cards

Since ISA cards, both Legacy and PnP may also need to use a DMA (direct memory access) channel. DMA assignments for this motherboard are handled the same way as the IRQ assignment process described above. You can select a DMA channel in the PCI and PnP configuration section of the BIOS setup utility. In the BIOS setup, you should choose "Yes" for those IRQ's and DMA's you wish to reserve for Legacy cards.

Chapter 3. AWARD BIOS SETUP

Use the CMOS setup program to modify the system parameters to reflect the environment installed in your system and customize the system as desired. Press the key to enter into the CMOS setup program when you turn on the power. Settings can be accessed via arrow keys. Press <Enter> to choose an option to configure the system properly.

In the main menu, press F10 or "SAVE & EXIT SETUP" to save your changes and reboot the system. Choose "EXIT WITHOUT SAVING" to ignore the changes and exit the setup procedure. Pressing <ESC> at anywhere during the setup will return to the main menu.

"THE BIOS FEATURE SETUP", "CHIPSET FEATURE SETUP" and "PCI CONFIGURATION SETUP" requires the board knowledge on PC/AT system architecture and VIA MVP3 chipset specification. They are intended to be used by well-trained technicians and experienced users. Incorrect setup could cause system malfunction.

3-1. Quick Setup

In most cases, you can quickly configure the system by the following procedure. The manufacturer highly recommends that you use "Quick Setup" for setting CMOS to avoid any unpredictable results.

1. Choose "STANDARD CMOS SETUP" from the main menu to configure the date and time, hard disk type, floppy disk drive type etc.
 2. Choose "LOAD SETUP DEFAULTS" from the menu for loading the defaults from the "BIOS Feature Setup" and "Chipset Feature Setup" which is set by manufacturer for most stable normal configuration.
 3. Press F10 or "SAVE & EXIT SETUP" to save the changes and reboot the system.
-

3-2. Description of BIOS Setup Option

Please make clearly the means of those option parameters, improper setting will cause the system to hang up or perform poorly. Most items are very clearly understood from the screen prompt. The manufacturer highly recommends that you use the “Default” setting to avoid any unpredictable results.

3-3. Details of Chipset Feature Setup

ROM PCI/ISA BIOS (2A5LEU4B)
CMOS SETUP UTILITY
CHIPSET FEATURE SETUP

| | | | |
|----------------------------|------------|------------|------------|
| Bank 0/1 DRAM Timing | : Normal | OnChip USB | : Disabled |
| Bank 2/3 DRAM Timing | : Normal | | |
| SDRAM Cycle Length | : 3 | | |
| DRAM Read Pipeline | : Enabled | | |
| Sustaned 3T Wrtite | : Enabled | | |
| Chache Rd+ CPU Wt Pipeline | : Enabled | | |
| Cache Timing | : Fast | | |
| Video BIOS Cacheable | : Enabled | | |
| System BIOS Cacheable | : Enabled | | |
| Memory Hole At 15Mb Addr. | : Disabled | | |
| AGP Aperture Size | : 64M | | |

DRAM Setting

The first chipset settings deal with CPU access to dynamic random access memory (DRAM). The default timings have been carefully chosen and should only be altered if data is being lost. Such a scenario might well occur if the system had mixed different speed DRAM chips, so that greater delays may be required to preserve the integrity of the data held in the slower memory chips.

Bank 0/1, 2/3 DRAM Timing

This value in the filed is set by the system board manufacturer, depending on whether the board has paged DRAMs or EDO (extended data output) DRAMs.

SDRAM Cycle Length

The field sets the CAS latency timing.

Sustained 3T Write

These items allow you to enable or disable direct map write back/write through secondary cache.

Cache Rd+CPU Wt Pipeline

This item allows you to enable/disable the cache timing.

Read Pipeline

You may select Enabled for this field when PBRAMs are installed. Pipelining improves system performance.

Video BIOS Cacheable

When enabled. The Video BIOS cache will cause access to video BIOS addressed at C0000H to C7FFFH to be cached, if the cache controller is also enabled.

System BIOS Cacheable

Enabling this selection allows accesses to the system BIOS ROM addressed F0000H-FFFFFH to be cached, provided that the cache controller is enabled.

Memory Hole At 15Mb Addr.

In order to improve performance, certain space in memory is reserved for ISA cards. This memory must be mapped into the memory space below 16MB.

AGP Aperture Size

Select the size of Accelerated Graphics Port (AGP) aperture. The Aperture is a portion of PCI memory address range dedicated for graphics memory address space. Host cycles that hit the aperture range are forwarded to the AGP without any translation. See www.apgforum.org for AGP information.

OnChip USB

Select Enabled if your system contains a Universal Serial Bus (USB) controller and you have USB peripheral. The “Assign IRQ for USB” has to be set to Enabled on “PnP/PCI Configuration” when the USB be used.

ENDAT-59NL/CL

3-4. Integrated Peripherals

ROM PCI/KISA BIOS (2A5LEU4B)
INTEGRATED PERIPHERALS
AWARD SOFTWARE, INC

| | | | |
|---------------------------|------------|------------------------|------------|
| OnChip IDE First Channel | : Enabled | Onboard Parallel Port | : 378/IRQ7 |
| OnChip IDE Second Channel | : Enabled | Onboard Parallel Mode | : ECP |
| IDE Prefetch Mode | : Enabled | ECP Mode Use DMA | : 3 |
| IDE HDD Block Mode | : Enabled | Parallel Port EPP Type | : EPP1.9 |
| IDE Primary Master PIO | : Auto | Onboard Serial Port 3 | : 3E8H |
| IDE Primary Slave PIO | : Auto | Serial Port 3 Use IRQ | : IRQ5 |
| IDE Secondary Master PIO | : Auto | Onboard Serial Port 4 | : 2E8H |
| IDE Secondary Slave PIO | : Auto | Serial Port 4 Use IRQ | : IRQ10 |
| IDE Primary Master UDMA | : Disabled | | |
| IDE Primary Slave UDMA | : Disabled | | |
| IDE Secondary Master UDMA | : Disabled | | |
| IDE Secondary Slave UDMA | : Disabled | | |
| Init. Display First | : PCI Slot | | |
| Onboard FDD Controller | : Enabled | | |
| Onboard Serial Port 1 | : 3F8/IRQ4 | | |
| Onboard Serial Port 2 | : 2F8/IRQ3 | | |
| UART 2 Mode | : Standard | | |

OnChip First/Second Channel

This chipset contains a PCI IDE interface with support for two IDE channels. Select Enabled to activate the first and/or second IDE interface. Select Disabled to deactivate this interface, if you install a first and/or second add-in IDE interface IDE interface.

IDE Prefetch Mode

Enable prefetching for IDE drive interfaces that support its faster drive accesses. If you are getting disk drive errors, change the setting to omit the drive interface where the errors occur. Depending on the configuration of your IDE subsystem, this field may not appear, and it does not appear when the Internal PCI/IDE field, above, is Disabled.

IDE HDD Block Mode

These items allow your hard disk controller to use the fast block mode to transfer data to and from your hard disk drive (HDD). Select Enabled only if your hard drives support block mode.

IDE Primary/Secondary Master/Slave PIO

The four IDE IPO (Programmed Input/Output) fields let you set a PIO mode (0-4) for each of the four IDE devices that the onboard IDE interface supports. Modes 0 through 4 provide successively increased performance. In auto mode, the system automatically determines the best mode for each device.

IDE Primary/Secondary Master/Slaver UDMA

Ultra DMA/33 implementation is possible only if your IDE hard drive supports it and the operating environment includes a DMA drive (Windows 95 OSR2 or a third-party IDE bus master driver). If the hard drive and your system software both support Ultra DMA/33, select Auto to enable BIOS support.

Onboard FDD Controller

This should be enabled if your system has a floppy disk drive (FDD) installed on the system Board.

Onboard Serial Port 1/ Port 2 / Port 3 / ort 4

This item allows you to determine access onboard serial port controller with which I/O address.

UART 2 Mode

This item allows you to determine which Infra Red (IR) function of onboard I/O chip.

Onboard Parallel Port

This item allows you to determine the access onboard parallel port controller with which I/O address.

Onboard Parallel Mode

Select an operating mode for the onboard parallel port. Normal EPP (Extended Parallel Port), ECP (Extended Capabilities Port) ECP+EPP PC AT parallel port Bi-directional port fast, buffered port Fast, buffered, Bi-directional port. Select Normal unless you are certain your hardware and software both support EPP or ECP mode.

3-5. Details of Power Management Setup

ROM PCI/ISA BIOS (2A5LEU4B)
POWER MANAGEMENT SETUP
AWARD SOFTWARE, INC.

| | | | |
|--------------------|--------------------|---------------------|-------------|
| ACPI Function | : Enabled | Primary INTR | : ON |
| Power Management | : User Define | IRQ3 (COM2) | : Primary |
| PM Control by APM | : Yes | IRQ4 (COM1) | : Primary |
| Video Off Option | : Suspend → Off | IRQ5 (LPT 2) | : Primary |
| Video Off Method | : V/H Sync + Blank | IRQ6 (Floppy Disk) | : Primary |
| MODEM Use IRQ | : 3 | IRQ7 (LPT 1) | : Primary |
| Soft-Off by PWRBTN | : Instant-Off | IRQ8 (RTC Alarm) | : Disabled |
| ** PM Timers ** | | IRQ9 (IRQ2 Redir) | : Secondary |
| HDD Power Down | : Disable | IRQ10 (Reserved) | : Secondary |
| Doze Mode | : Disable | IRQ11 (Reserved) | : Secondary |
| Suspend Mode | : Disable | IRQ12 (PS/2 Mouse) | : Primary |
| ** PM Timers ** | | IRQ13 (Coprocessor) | : Primary |
| VGA | : OFF | IRQ14 (Hard Disk) | : Primary |
| LPT & COM | : LPT/COM | IRQ15 (Reserved) | : Disabled |
| HDD & FDD | : ON | | |
| DMA/Master | : OFF | | |
| Modem Ring Resume | : Disabled | | |
| RTC Alarm Resume | : Disabled | | |

Power Management

This category allows you to select the type (or degree) of power saving and is directly relate to the following modes:

1. Doze Mode
2. Suspend Mode
3. HDD Power Down

There are four selections for Power Management, three of which have fixed mode settings:

| | |
|----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Disable (Default) | No Power Management. Disables all four modes |
| Min. Power Saving | Minimum power management. Doze Mode = 1 hr., Standby Mode = 1 hr., Suspend Mode = 1 hr., and HDD power down = 15 min. |
| Max. Power Saving | Maximum power management – Only Available for SL CPU's. Doze Mode = 1 min., Standby Mode = 1 min., Suspend Mode = 1 min., And HDD power down = 1 min. |
| User Defined | Allows you to set each mode individually. When not disabled, each of the ranges are from 1 min. to 1 hr. except for HDD power down which ranges from 1 min. to 15 min. and disable |

PM Control APM

When enabled, an Advanced Power Management device will be activated to enhance the Max. Power Saving mode and stop the CPU internal clock. If Advance Power Management (APM) is installed on your system, selecting “Yes” gives better power savings. If the Max. Power Saving is not enabled; this will be preset to NO.

Video Off Option

When enabled, this feature allows the VGA adapter to operate in a power saving mode.

| | |
|------------------|--------------------------------------------------------------------|
| Always On | Monitor will remain on during power saving modes |
| Suspend → Off | Monitor blanked when the system enters the Suspend mode |
| Susp, Stby → Off | Monitor blanked when the system enters either Suspend or Stby mode |
| All Mode → Off | Monitor blanked when the system enters any power saving mode |

Video Off Method

This determines the manner in which the monitor is blanked

| | |
|----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| V/H SYNC+Blank | This selection will cause the system to turn off the vertical and horizontal synchronization ports and write blank to the video buffer |
| Blank Screen | This option only writes blank to the video buffer |
| DPMS | Select this option if your monitor supports the Display Power Management Signaling (DPMS) standard of the Video Electronics Standard to select video power management values |

MODEM Use IRQ

This determines the IRQ in which the MODEM can use.

Soft-Off by PWRBTN

When Enabled, turning the system off with the on/off button places the system in a very low-power-usage state, with only enough circuitry receiving power to detect power button activity or Resume by Ring activity.

PM Timers

The following four modes are Green PC power saving functions that are only when User Defined Power Management has been selected.

HDD Power Down

When enabled and after the set time of system inactivity, the hard disk drive will be powered down while all other devices remain active.

Doze Mode

When enabled and after the set time system inactivity, the CPU clock will run at slower speed while all other devices still operate at full speed.

Suspend Mode

When enabled and after the set time of system inactivity, all devices except the CPU will be shut off.

PM Events

PM events are I/O events whose occurrence can prevent the system from entering a power saving mode or can awaken the system from such a mode. In effect, the system remains for anything, which occurs to a device that is configured as ON, even when the system is in a power down mode.

When set to ON (Default), any event occurring at a VGA/COM/LPT port or HDD/FDD device will awaken a system which has been powered down.

DMA/Master

When set to ON (Default), any event occurring to the DMA controller will awaken a system, which has been powered down.

Primary INTR

When set to ON (Default), any event occurring at will awaken a system, which has been powered down.

3-6. PCI Configuration Setup

PCI Configuration Setup

This section describes configuring the PCI bus system. PCI is a system that allows I/O device to operate at speeds nearing the speed of CPU itself, when communicating with its own special components.

This section covers some very technical items and it is strongly recommended that only experienced users could make any changes to the default settings.

ROM PCI/ISA BIOS (2A5LEU4B)
PNP/PCI CONFIGURATION
AWARD SOFTWARE, INC.

| | | | |
|--------------------------|---------------|--------------------------|------------|
| PNP OS Installed | : Yes | CPU to PCI Write Buffer | : Enabled |
| Resources Controlled By | : Manual | PCI Dynamic Bursting | : Enabled |
| Reset Configuration Data | : Disabled | PCI Master 0 WS Write | : Enabled |
| ACPI I/O Device Mode | : Enabled | PCI Delay Transaction | : Enabled |
| IRQ-3 Assigned to | : Legacy ISA | PCI Master Read Prefetch | : Enabled |
| IRQ-4 Assigned to | : Legacy ISA | PCI #2 Access #1 Retry | : Disabled |
| IRQ-5 Assigned to | : PCI/ISA PnP | AGP Master 1 WS Write | : Enabled |
| IRQ-7 Assigned to | : Legacy ISA | AGP Master 2 WS Read | : Disabled |
| IRQ-9 Assigned to | : PCI/ISA PnP | PCI IRQ Activated by | : Level |
| IRQ-10 Assigned to | : PCI/ISA PnP | Assign IRQ for USB | : Disabled |
| IRQ-11 Assigned to | : PCI/ISA PnP | Assign IRQ for VGA | : Disabled |
| IRQ-12 Assigned to | : PCI/ISA PnP | Assign IRQ for ACPI | : IRQ10 |
| IRQ-14 Assigned to | : PCI/ISA PnP | | |
| IRQ-15 Assigned to | : PCI/ISA PnP | | |
| DMA-0 Assigned to | : PCI/ISA PnP | | |
| DMA-1 Assigned to | : PCI/ISA PnP | | |
| DMA-3 Assigned to | : PCI/ISA PnP | | |
| DMA-5 Assigned to | : PCI/ISA PnP | | |
| DMA-6 Assigned to | : PCI/ISA PnP | | |
| DMA-7 Assigned to | : PCI/ISA PnP | | |

PNP OS Installed

Select Yes if the system operating environment is Plug-and-Play software (e.g. Windows95).

Resource Controlled By

The Award Plug and Play BIOS has the capacity to automatically configure all of the boot with Plug and Play compatible devices. However, this capability means absolutely nothing

unless you are using a Plug and Play operating system such as Windows95.

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Reset Configuration Data

Normally, you leave this field Disabled. Select Enabled to reset Extended System Configuration Data (ESCD) when you exit Setup if you have installed a new add-on device and system configuration has caused such a serious conflict that the operating system cannot boot.

IRQ3/4/5/7/9/10/11/12/14/15 Assigned to

When resources are controlled manually, assign each system interrupt as one of the following types, depending on the type of device using the interrupt:

Legacy ISA Devices compliant with the original PC AT bus specification, requiring a specific interrupt(such as IRQ4 for serial port). PCI/ISA PnP Devices compliant with the Plug and Play standard, whether designed for PCI or ISA bus architecture.

DMA0/1/3/5/6/7 Assigned to

When resources are controlled manually, assign each system DMA channel as one of the following types, depending on the type of device using the interrupt:

Legacy ISA Devices compliant with the original PC AT bus specification, requiring a specific interrupt (such as IRQ4 for serial port). PCI/ISA PnP Devices compliant with the Plug and Play standard, whether designed for PCI or ISA bus architecture.

CPU to PCI Write Buffer

When enabled, up to four D words of data can be written to the PCI bus without interrupting the CPU. When disabled, a write buffer is not used and the CPU read cycle will not be completed until the PCI bus signals that it is ready to receive the data.

PCI Dynamic Bursting

When enabled, data transfers on the PCI bus, where possible, make sure of the high performance PCI bust protocol, in which greater amounts of data are transferred at a single command.

PCI Master 0 WS Write

When enabled, writes to the PCI bus are command with zero wait states.

PCI Delay Transaction

The chipset has an embedded 32-bit posted write buffer to support delay transaction cycles. Select Enabled to support compliance with PCI specification version 2.1.

PCI IRQ Activated by

This sets the method by which the PCI bus recognizes that an IRQ services is being requested by a device. Under all circumstances, you should retain the default configuration unless advised otherwise by your system's manufacturer.

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Chapter 4. AGP/PCI-Bus VGA, IDE Adapter and DiskOnChip

4-1. AGP-Bus VGA Feature – 586NL

The 3Dimage product line brings together “best of breed” features in every category of VGA, 3D, 2D, MPEG I/II acceleration, Video Conferencing. It establishes the highest level of 3D performance in the PC market, creates a new bar to beat in 2D benchmark performance and produces sharp smooth dual video windows using Trident’s famed TrueVideo® technology.

4-2. PCI-Bus VGA Feature – 586CL

The PCI Local Bus VGA of the board brings the functions of the latest video standards to you.

Features includes:

- All the capabilities of IBM’s Person System/2* Display Adapter
- A 16-bit bus interface for high speed display memory access
- 2MB bytes of high speed video display memory
- Windows™ Performance improvement features:
 - ✓ High performance write Buffer architecture
 - ✓ Two operant BitBLT engine for GUI acceleration
 - ✓ Monochrome bit-map expansion
 - ✓ 8 x 8 pattern fills
 - ✓ Graphics engine operates on both 8- and 16-bit pixel data
 - ✓ Hardware graphics cursor up to 64 x 64 pixels
- 132-column alphanumeric mode on all monitors

4-3. AGP-Bus/PCI-Bus VGA Driver and Utilities

All the AGP Bus/PCI Bus Display Drivers are placed onto CD-ROM

4-4. AGP Bus/PCI Bus IDE Driver and Utilities

The Utilities Installation Program is placed onto CD-ROM

4-5. DiskOnChip Feature

The On board reserved a 32-pin Socket for DiskOnChip 2000, it is an unique data storage solution to offer a better, faster and more cost effective Flash Disk for applications with limited space and modest disk capacity requirement.

The DiskOnChip 2000 provides a Flash Disk (as BIOS expansion) that does not require any additional bus, slot or connector. Simply insert the DiskOnChip 2000 into a 32-pin socket on your motherboard, with minimal installation cost, and have a bootable Flash Disk. DiskOnChip 2000 has built-in TrueFFS (True Flash File System) technology, which provides full Read/Write disk emulation.

TrueFFS provides hard disk compatibility at both the sector and file level. It works in a variety of operating system environments, such as DOS, Win95, WinCE, WinNT, Psos+ and QNX.

You have to set the correct memory address for DiskOnChip by JP13 or JP16

JP13/JP16:DiskOnChip Memory Address Select

| JP13 (586NL)/ JP16 (586CL) | | Memory Address |
|----------------------------|----------|-----------------|
| Pin 1-2 | Pin 7-8 | 0C800H - 0C9FFH |
| Pin 1-2 | Pin 9-10 | 0CC00H - 0CDFFH |
| Pin 3-4 | Pin 7-8 | 0DCCCH - 0D1FFH |
| Pin 3-4 | Pin 9-10 | 0D400H - 0D5FFH |
| Pin 5-6 | Pin 7-8 | 0D800H - 0D9FFH |
| Pin 5-6 | Pin 9-10 | 0DC00H - 0DDFFH |

4-6. DiskOnChip Drivers and Utilities

The Utilities is placed onto CD-ROM, it is available in ordering with DiskOnChip.

Chapter 5. LAN Adapter

The 21143 is an Ethernet LAN controller for both 100-Mb/s and 10-Mb/s data rates, which provides a direct interface to the peripheral components interconnect (PCI) local bus. The 21143 interfaces to the host processor by using onchip command and status registers (CSRs) and a shared host memory area, set up mainly during initialization. This minimizes processor involvement in the 31143 operations during normal reception and transmission.

The 21143 is optimized for low power PCI based systems and supports two types of power-management mechanisms. The main mechanism is based upon the OnNow architecture, which is required for PC 97 and PC 98. The alternative mechanism is based upon the older remote wake-up-LAN mechanism.

Large FIFOs allows the 21143 to efficiently operate in systems with longer latency periods. Bus traffic is also minimized by filtering out received runt frames and by automatically collided frames without a repeated fetch from the host memory. The 21143 provide and upgradeable boot ROOM interfaces.

5-1. Feature

Power Management and Power Saving:

- Full compliance with Revision 1.0 of the Network Device Class Power Management Specification, under the OnNow Architecture for Microsoft's PC 97 Hardware Design Guide and PC 98 System Design Guide.
 - Supports all wake-up events defined in Revision 1.0 of the Network Device Class Power Management Specification, including:
 - ✓ Pattern matching
 - ✓ Link change
 - ✓ Magic Packet
 - Fully compliant with Revision 1.0 of the Advanced Configuration and Power Interface (ACPI) Specification.
 - Fully compliant with Revision 1.0 of PCI Bus Power Management Interface Specification.
 - Implements low-power management with two power-saving modes (sleep and snooze), with the device powering up in sleep mode.
-

- Supports remote wake-up-LAN, which is a feature based upon Advanced Micro Device's Magic Packet technology.
- Implements low-power, 3.3-V CMOS technology.

PCI Features:

- Supports PCI Interfaces.
- Supports PCI clock control through clkrun.
- Supports the advanced PCI read multiple, read line, and write and invalidate commands.
- Supports an unlimited PCI burst.
- Supports PCI clock speed frequency from dc to 33 MHz; network operation with PCI clock from 20 MHz to 33 MHz.

Host Interface Features:

- Includes a powerful onchip direct memory access (DMA) with programmable burst size, providing low CPU utilization.
- Supports interrupt mitigation on transmit and receive.
- Supports big or little endian byte ordering for buffers and description
- Implements unique, patent-pending intelligent arbitration between DMA channels to minimize underflow and overflow.
- Contains large independent receive and transmit FIFOs.

Network Side Features:

- Supports three network ports: 10BASE-T (10 Mb/s), AUI (10 Mb/s) and MII/SYM (100/100 Mb/s).
 - Contains a variety of flexible address filtering modes.
 - Contain onchip PCS and scrambler/descrambler for 100BASE-TX.
 - Implements signal-detect filtering to avoid false detection of link with 100BASE-TX symbol interfaces.
 - Enables automatic detection and correction of 10BASE-T receive polarity.
 - Contains onchip integrated AUI port and a 10BASE-T transceiver.
 - Supports auto detection between 10BASE-T AUI and MII/SYM ports
 - Supports IEEE 802.3 Auto-Negotiation algorithm of full-duplex and half-duplex operation for 10 Mb/s and 100 Mb/s (NWAY).
 - Offers a unique, patented solution to Ethernet capture-effect problem.
 - Supports full-duplex operation on both MII/SYM and 10BASE-T ports
-

- Provides internal and external loop back capability on all network ports.
- Supports IEEE 802.3 and ANSI 8802-3 Ethernet standards.

Other Features:

- Provides Micro Wire interface for serial ROM (1K and 4K EEPROM).
- Provides an upgradeable boot ROM interface up to 256KB.
- Provides LED indications for various network activity.

5-2. UTP Cable / RJ-45 Jack Definition

Straight-through twisted-pair cable is typically used to connect a hub to a server or workstation. In a straight-through connection, Pin 1 at the server, Pin 2 at the hub connects to Pin 2 at the server, and so on. Figure A-1 shows the locations of pins on a standard RJ-45 plugs on a twisted-pair cable.

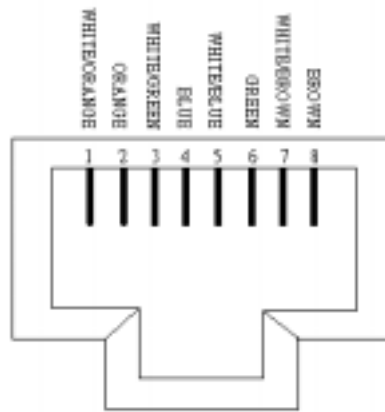
Table A-1 shows the wiring in a straight-through twisted-pair cable (Pins 4,5,7 and 8 are not used).

| Twisted Pair Number | Pin Number | Signal Description | To | Pin Number | Signal Description |
|---------------------|------------|--------------------|----|------------|--------------------|
| 1 | 1 | TD+ | → | 1 | TD+ |
| | 2 | TD- | | 2 | TD- |
| 2 | 3 | RD+ | → | 3 | RD+ |
| | 6 | RD- | | 6 | RD- |

RJ-45 Connector Pin Assignments

Figure A-1 shows the RJ-45 Connector pin assignments

RJ45 PIN AND CABLE COLORS



5-3. Connecting 100Base-TX Fast Ethernet Network

The system board provides a RJ-45 port for connection to 100Base-TX Fast Ethernet or 10Base-T Ethernet Network with a single connection over unshielded twisted-pair (UTP) or shielded twisted-pair (STP) cable.

The adapter automatically operates at 10Mbps or 100Mbps when the appropriate 10/100Base hub is connected. To connect the adapter to 100Base-TX Fast Ethernet Network, you need a twisted-pair Category 5 or better cable with RJ-45 phone jacks at both ends. This cable can have a maximum length of 100 meters.

5-4. Connecting 10Base-T Ethernet Network

To connect the adapter to a 10Base-T Ethernet Network, you need a twisted-pair Category 3, 4 or 5 cable with RJ-45 phone jacks at both ends. This cable can have a maximum length of 100 meters.

5-5. 10Mbase/100Mbase Installation Notice

- 100Mbps network must be shielded twisted-pair (STP) or Category 5 unshielded twisted-pair cable. Do not use Category 3, 4 cable for 100Mbps-network operation, it could cause data loss. Category 3 or 4 cable is good for 10Mbps

network only

- Category 5 cable is also good for 10Mbps operation. If all network used UTP Category 5 cable, that you may have the versatility to operate the network at either 100Mbps or 10Mbps speed without changing cable due to cable category grade
- Two pairs of wiring are required
- Depending on building codes, different insulation materials may be required. Plenum Rated or TEFLON-coated wiring may be required in some areas
- The wire gauge should be between 18 and 26 AWG (Most telephone installations use 24-gauge wiring)
- UTP cable should meet the following requirements:
 1. Solid copper
 2. Nominal capacitance: less than 16pF/ft
 3. Nominal impedance: 100 Ohms
 4. Nominal attenuation: less than 11.5db

Automatic Selection of the Media Type

While the driver installs, it automatically detects the media type based on the type of cable connected. Once you change the cable type, you must reinstall the driver to execute auto-detect again.

If the driver can not detect which cable is connected or whether a cable is connected, look at cabling network driver (Ex. Modify net.cfg file parameters - force line speed=10 or 100).

10/100 Auto-Negotiation (NWAY)

Depending on the hub or device connected, the on board LAN adapter can automatically run at the appropriate speed, by using NWAY, a feature that complies with the IEEE 802.3 standard. It also works with any of other IEEE-compliant products.

5-6. Remote Boot ROM Installation

The 21143 support various size of boot ROM. When the address space of the boot ROM used is 512 bytes or smaller, the 21143 supports one latch on its boot ROM port.

Boot ROM Install Notice:

The Intel 21x4 family consists of a series of Ethernet controllers sharing a generic

architecture and, a set of support software, mainly drivers, each supporting the whole family of hardware components that existed when the software was released. Below is the list of the current hardware and software components.

DC21X4 Software

The Intel 21X4 family software provides support for the following environments:

- 32bit NDIS 21X4 drivers for Windows NT4.0, Windows NT3.51, Windows 95, Window 95-OSR2 and Windows 98
- NDIS2 21X4 MAC Driver for DOS, WfW3.11, OS/2 and Windows 95
- Novell Netware ODI-32 bit 21X4 Server Driver
- Novell Netware 3.1x, 4.x ODI-16 bit DOS 21X4 Client Driver
- SCO UNIX LLI D21X Driver
- SCO UNIX MDI D21X Driver

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Table 2. The Novell Netware ODI Client Directory Files

| File | Additional Keyword Details |
|-------------|-----------------------------------------------------------------------------------------------------------------------------------|
| README.DOC | This File |
| RELEASE.TXT | Provides a description of updates to the new driver |
| DC21X4.COM | DC21X4 Novell Netware ODI 16bit Client driver. This file supports the Intel 2114x 10/100Mbps Ethernet Controller based PCI boards |
| DC21X4.INS | Text file for NetWare*4.x install |
| NET.CFG | Novell network configuration sample file for this driver |

5-7. Software Revision Requirements

- MS-DOS version 3.31 or above
If you are running EMM386, make sure you are using v4.49 or later. It is the version that ships with DOS 6.22
- Novel LSL.COM version 2.16 or above
- Novell IPXODI.COM version 3.02 or above
- Novell NETX.COM version 1.11 or above
- Novell VLM files version 1.20B or above

For getting the most update revisions of Novell files, please contact Novell at:

Novell, Inc. Novell Labs Administration

MS E-13-1 122 East 1700 South Provo, UT 84606

Tel: 801-429 7000

Internet: <http://www.novell.com/>

5-8. Driver Installation

DC21X4.COM is a Novell NetWare ODI client driver supporting the Intel 21X4 family of PCI based Ethernet controllers.

Driver Installation for NetWare 3.11/3.12 clients

In order to install the driver from the DOS Command Line Prompt follows these steps:

- Insert a diskette containing the DC21X4 DOS ODI driver into the floppy drive
- If first time installation then Create a subdirectory in your client's hard drive to

storing the Novell NetWare DOS ODI client files

- Copy the following files to the Novell Client subdirectory:
 - **LSL.COM** (Link Support Layer)
 - **DC21X4.COM** (Intel NetWare DOS ODI Client Driver)
 - **IPXODI.COM** (An IPX protocol stack file)
 - **NETX.EXE** (NetWare Shell, used with conventional memory workstations)
 - **NET.CFG** (Optional configuration file used for setting options different from the default Setting).

The **LSL.COM**, **IPXODI.COM** and **NETX.EXE** files can be obtained from the workstation Driver Diskette in the Novell Client Software Package.

❖ **Edit the NET.CFG file according to your needs**

Select the Frame type that you need , if you do not know which frame type to load, ask your system administrator or type CONFIG at your file server console to see which frame types your file server is using, then select one of these frame types on the workstation (NetWare default frame type is 802.3).

If you list two or more NetWare frame types in the NET.CFG, the first frame type will bind to the IPX protocol.

❖ **Reserve Logical Volumes for NetWare**

Edit your CONFIG.SYS and make sure that LASTDRIVE entry (if exists) is not "Z".

Usually it will be one letter pass the last volume, for instance if you have a Hard Disk(C) and a compact disk (D) then please write **LASTDRIVE=E**

❖ **Load the Novell NetWare client files**

* To manually load these files from the DOS prompt, type the following commands in the given order to initialize DOS ODI driver support and the IPX protocol stack:

```
LSL           Followed by <Enter>
DC21X4       Followed by <Enter>
IPXODI       Followed by <Enter>
NETX         Followed by <Enter>
```

* To automatically load these files, add these lines to your C:\AUTOEXEC.BAT file (and in the following order):

<subdirectory>LSL
<subdirectory>DC21X4
<subdirectory>IPXODI
<subdirectory>NETX

Save the file and reboot the workstation. After the commands execute and if a server is present, the workstation will attach to the server and display the server's name.

❖ **Log onto the network**

The installation of the NetWare DOS ODI client driver is now complete

Driver Installation for NetWare 4.1/3.12 clients with VLMs

The NetWare DOS Requester (VLMs) is the requester component of the NetWare 16-bit Client for DOS and MS Windows. VLM is the primary technology that provides access to NetWare 4.x servers from the DOS environment.

For a first time installation of a VLM NetWare client please use the Novell INSTALL.EXE utility.

INSTALL.EXE is located on NetWare "Workstation for DOS" disk.

Note: INSTALL.EXE must be version 1.21 or greater

First Installation of NetWare 4.1/3.12 clients with VLMs

Run the INSTALL.EXE program, NetWare Client Install program screen appears. Fill in the information requested by the program. You must complete each of the options, as they are specific to your needs.

Step 5 asks you to select a network driver and provide configuration options. It used the specifications you select to create the NET.CFG file. You may select the Intel DC21X4 driver from the list Novell provides, or if you have a more updated driver chooses OTHER DRIVER and insert the Intel Drivers diskette. Select the Intel 2104x/2114x 10/100Mbps Ethernet Controller Driver. These are several configurable settings, we will list the most common ones:

- Node Address: (optional) changes the Node Address to a local address
 - Frame Type: Set the frame type to match the file server (NetWare default is the 802.2 frame type)
-

Connection Type: (optional) the type of connection to work with (autosense is recommended)

- Line Speed: (optional) sets the line speed to either 10 or 100 Mbps

Meaningful only when TP or TP_FULL_DUPLEX are selected (see driver keywords section for details)

In the next step the install program will copy the appropriate files to your hard drive.

This is the final step.

Note: *Be sure to add LASTDRIVE=Z to your CONFIG.SYS file and, FIRST NETWORK DRIVE=<first available Driver Letter> in the NET.CFG file under the NetWare DOS Requester section.*

Usually the <First available Drive Letter> is F

Driver Upgrade of NetWare 4.1/3.12 clients with VLMS

To manually install the DC21X4.COM driver or to upgrade the driver

- Insert a diskette containing the DC21X4 DOS ODI driver diskette into the floppy drive
- If first time installation then create a subdirectory in your client's hard drive for storing the Novell NetWare DOS ODI client files and Copy the Novell NetWare files to the Novel Client subdirectory:
- copy the DC21X4.COM driver file to the Novell Client subdirectory
- Edit the NET.CFG file according to your needs

Note: *Be sure to add, FIRST NETWORK DRIVE=<First available Driver Letter> in the NET.CFG file*

Under the NetWare DOS Requester section.

Usually the <First available Drive Letter> is F

NetWare client driver loading sequence

- Load the Novell NetWare client files
- To manually load these files from the DOS prompt, type the following commands

in the given order to initialize DOS ODI driver support and the IPX protocol stack:

LSL Followed by <Enter>
DC21X4 Followed by <Enter>
IPXODI Followed by <Enter>
NETX Followed by <Enter>

- To automatically load these files, add these lines to your C:\AUTOEXEC.BAT file (and in the following order):

<sub-directory>LSL
<sub-directory>DC21X4
<sub-directory>IPXODI
<sub-directory>NETX

Save the file and reboot the workstation. After the commands execute and if a server is present, the workstation will attach to the server and display the server's name.

Note: *Be sure to add LASTDRIVE=Z to your CONFIG.SYS file*

The DC21X4.COM may be loaded high in order to free DOS conventional memory for other use (this is done by writing LH <subdirectory>DC21X4 in autoexec.bat) Log onto the network.

The installation of the NetWare DOS ODI client driver is now complete.

Driver Keywords

Novell NetWare DOS Client environment uses a configuration file called NET.CFG in order to control the various NetWare components of the system. This file usually resides in the Novell NetWare subdirectory. For each workstation driver being configured, if section headings and options deviate from the established defaults of the ODI software or, if multiple protocols are being used, then select a set of supported values from the DC21X4 configuration options. These values should be written in the NET.CFG file and then load the driver. To change any default settings after the driver is loaded, the user must modify the current NET.CFG file (or create such a file if it does not exist), using any text editor, unload the Novell protocol files and driver, and reload them again.

To unload the Novell protocol to the following:

VLM U (or NETX U) Followed by <Enter>
IPXODI U Followed by <Enter>

DC21X4 U Followed by <Enter>
LSL U Followed by <Enter>

NET.CFG Conventions

The NET.CFG is a text file divided into sections shown in the following example:

Link Support

Max Boards 4
Max Stacks 8
Protocol <Protocol Name>
Bind <Driver Name>

Link Driver <Driver Name>

Frame ETHERNET_802.3
Frame ETHERNET_II
Frame ETHERNET_802.2
Frame ETHERNET_SNAP

NetWare DOS Requester

FIRST NETWORK DRIVE = F
NETWARE PROTOCOL = NDS BIND

Note: Where <Driver Name> above is DC21X4 and <Protocol Name> is usually IPX.

The NET.CFG file structure follows these guidelines:

- Main section headings must be left-justified and are not case sensitive
- Options are not case sensitive and must be preceded by a tab or spaces
- Options must follow the heading associated with them
- Comments are preceded by a semicolon (";") and, end each line with an <Enter>

Numbers are in decimal notation unless noted otherwise

For more detail information "NEG.CFG", please refer to driver utility
\586..L\DEC_21143\NWCLIENT\README.DOC for Windows WORD file

5-9. LED Indicators

The motherboard comes with two LED indicators on RJ45 jack to indicate the network status. If you experience any problems with the adapter, first make sure the appropriate driver is loaded, the proper cable is connected to the RJ-45 port, and the hub complies with the adapter specification, such as 100Mbps 10BASE-T or 100Mbps 100BASE-TX. Then recheck the LEDs

FUDUP (Full Duplex) Indicator

When indicator is ON, it indicates in Full-duplex mode; otherwise, it is OFF. The adapter supports full duplex at 10 or 100Mbps. If the switch supports the NWAY feature and full duplex, the adapter automatically runs in full duplex mode.

10/100 (Link) Indicator

This indicator will turn ON under two conditions: a good 10BASE-T between adapter and hub or a good 100BASE-TX connection between adapter and hub.

Appendix A: FLASH Memory Utility

Using this utility to update the system BIOS from a disk file to the on board Flash memory. Be aware the improperly changing the system BIOS will cause the system to malfunction.

Using utility as follows:

1. Insert the FLASH memory utility distribution floppy diskette in drive A:
2. At the DOS prompt, type A:>AWDFLASH and press <Enter>

| | |
|----------------------------------------------------------------|----------------|
| FLASH MEMORY WRITE v1.3 Copyright 1993, Award Software, Inc | |
| For VIA MVP3-W877TF-2A5LEU4BC-0 | Date: 08/20/98 |
| Flash Type – SST 29EE020 / 5V | |
| File Name to Program: | |
| Error Message: Do you want to save BIOS (Y/N) | |

3. Enter the name of the system BIOS disk file into the "File Name to Program" field
 4. The following message appears in the "Error Message" field
Do you want to save BIOS (y/n)?
 5. To update the FLASH memory from the system BIOS disk file, type Y
 6. After complete updating, please re-boot the system
 7. For upgrade BIOS procedure, please refer to our web site
<http://www.unicorn-computer.com.tw>
-

Appendix B: Connector Pin Assignment

PS/2 Keyboard Connector

| Pin No. | Description |
|---------|----------------|
| 1 | Keyboard Data |
| 2 | N.C |
| 3 | Ground |
| 4 | +5V DC |
| 5 | Keyboard Clock |

PS/2 Mouse Connector

| Pin No. | Description |
|---------|-------------|
| 1 | Mouse Data |
| 2 | N.C |
| 3 | Ground |
| 4 | +5V DC |
| 5 | Mouse Clock |

COM1 or COM3, COM2 or COM4

| Pin No. | Description | Pin No. | Description |
|---------|-------------|---------|-------------|
| 1 | DCD | 6 | DSR |
| 2 | RXD | 7 | RTS |
| 3 | TXD | 8 | CTS |
| 4 | DTR | 9 | RI |
| 5 | GND | | |

Printer (LPT) Port

| Pin No. | Description | Pin No. | Description |
|---------|-------------|---------|-------------|
| 1 | STB# | 10 | ACK# |
| 2 | PD0 | 11 | BUSY |
| 3 | PD1 | 12 | PE |
| 4 | PD2 | 13 | SLCT |
| 5 | PD3 | 14 | AFD# |
| 6 | PD4 | 15 | ERR# |
| 7 | PD5 | 16 | INIT# |
| 8 | PD6 | 17 | SLIN# |
| 9 | PD7 | 18-25 | GND |

VGA Connector

| Pin No. | Description | Pin No. | Description |
|---------|-------------|---------|-------------|
| 1 | RED | 9 | GND |
| 2 | GREEN | 10 | GND |
| 3 | BLUE | 11 | N.C |
| 4 | N.C | 12 | DDC DAT |
| 5 | GND | 13 | H.Sync |
| 6 | GND | 14 | V.Sync |
| 7 | GND | 15 | DDC CLK |
| 8 | GND | | |

Feature Connector

| Pin No. | Description | Pin No. | Description |
|---------|-------------|---------|-------------|
| 1 | PXD0 | 10 | BLANK# |
| 2 | PXD1 | 11 | H.Sync |
| 3 | PXD2 | 12 | V.Sync |
| 4 | PXD3 | 13-16 | GND |
| 5 | PXD4 | 22-24 | GND |
| 6 | PXD5 | 17 | EXENPD |
| 7 | PXD6 | 18 | EXSYNC |
| 8 | PXD7 | 19 | ECTCLK |
| 9 | PCLK | 20-21 | N.C. |
| | | 25-26 | N.C. |

FDD Connector

| Pin No. | Description | Pin No. | Description |
|----------|-------------|---------|-------------|
| 1,3,5,7 | GND | 14 | DSA# |
| 9,11,13 | GND | 16 | MOB# |
| 15,17,19 | GND | 18 | DIR |
| 21,23,25 | GND | 20 | STEP# |
| 27,29,31 | GND | 22 | WD# |
| 33 | GND | 24 | WE# |
| 2 | RWC# | 26 | TRAK0 |
| 4,6 | N.C | 28 | WP# |
| 8 | INDEX# | 30 | RDATA# |
| 10 | MOA# | 32 | HEAD# |
| 12 | DSB# | 34 | DSKCHG# |

HDD LED

| Pin No. | Description |
|---------|-------------|
| 1 | LED + |
| 2 | LED - |

External Speaker Connector

| Pin No. | Description |
|---------|-------------|
| 1 | SPK |
| 2 | N.C |
| 3 | GND |
| 4 | Vcc |

IDE1, IDE2 Connector

| Pin No. | Description | Pin No. | Description |
|----------|-------------|---------|-------------|
| 2,19,22 | GND | 13 | IDE data2 |
| 24,26,30 | GND | 14 | IDE data13 |
| 40 | GND | 15 | IDE data1 |
| 20,21,28 | N.C | 16 | IDE data14 |
| 29,32,34 | N.C | 17 | IDE data0 |
| 1 | IDE reset | 18 | IDE data15 |
| 3 | IDE data7 | 23 | IDE Write |
| 4 | IDE data8 | 25 | IDE Read |
| 5 | IDE data6 | 27 | IDE Ready |
| 6 | IDE data9 | 31 | IDE IRQ |
| 7 | IDE data5 | 33 | IDE A1 |
| 8 | IDE data10 | 35 | IDE A0 |
| 9 | IDE data4 | 36 | IDE A2 |
| 10 | IDE data11 | 37 | IDECS1# |
| 11 | IDE data3 | 38 | IDESC3# |
| 12 | IDE data12 | 39 | HDLED0# |

Keylock / Power - LED

| Pin No. | Description |
|---------|-------------|
| 1 | Power LED |
| 2 | Power LED |
| 3 | GND |
| 4 | Keylock |
| 5 | GND |

USB Port 1/2 Pin Header

| Pin No. | Description |
|---------|-----------------|
| 1/2 | Vcc |
| 3/4 | USBDATA - (1/2) |
| 5/6 | USBDATA + (1/2) |
| 7/8 | GND |
| 9/10 | GND |

IR Connector

| Pin No. | Description |
|---------|-------------|
| 1 | IRRX |
| 2 | GND |
| 3 | IRTX |
| 4 | N.C |
| 5 | Vcc |

ENDAT-59NL/CL

Expansion Slot to PCI/ISA Pin Assignment

| Pin No. | Description | Pin No. | Description | Pin No. | Description | Pin No. | Description |
|---------|-------------|---------|-------------|---------|-------------|---------|-------------|
| A1 | -IOCHK | B1 | GND | C1 | -SBHE | D1 | -MEMCS16 |
| A2 | SD7 | B2 | RSTDRV | C2 | LA23 | D2 | -IOSC16 |
| A3 | SD6 | B3 | VCC | C3 | LA22 | D3 | IRQ10 |
| A4 | SD5 | B4 | IRQ9 | C4 | LA21 | D4 | IRQ11 |
| A5 | SD4 | B5 | -5V | C5 | LA20 | D5 | IRQ12 |
| A6 | SD3 | B6 | DRQ2 | C6 | LA19 | D6 | IRQ13 |
| A7 | SD2 | B7 | -12V | C7 | LA18 | D7 | IRQ14 |
| A8 | SD1 | B8 | OWS | C8 | LA17 | D8 | -DACK0 |
| A9 | SD0 | B9 | +12V | C9 | -MEMR | D9 | DRQ0 |
| A10 | IOCHRDY | B10 | GND | C10 | -MEMW | D10 | -DACK5 |
| A11 | AEN | B11 | -SMEMW | C11 | SD8 | D11 | DRQ5 |
| A12 | SA19 | B12 | -SMEMR | C12 | SD9 | D12 | -DACK6 |
| A13 | SA18 | B13 | -IOW | C13 | SD10 | D13 | DRQ6 |
| A14 | SA17 | B14 | -IOR | C14 | SD11 | D14 | -DACK7 |
| A15 | SA16 | B15 | -DACK3 | C15 | SD12 | D15 | DRQ7 |
| A16 | SA15 | B16 | DRQ3 | C16 | SD13 | D16 | VCC |
| A17 | SA14 | B17 | -DACK1 | C17 | SD14 | D17 | MASTER |
| A18 | SA13 | B18 | DRQ1 | C18 | SD15 | D18 | GND |
| A19 | SA12 | B19 | REFLASH | | | | |
| A20 | SA11 | B20 | SYSCLK | | | | |
| A21 | SA10 | B21 | IRQ7 | | | | |
| A22 | SA9 | B22 | IRQ6 | | | | |
| A23 | SA8 | B23 | IRQ5 | | | | |
| A24 | SA7 | B24 | IRQ4 | | | | |
| A25 | SA6 | B25 | IRQ3 | | | | |
| A26 | SA5 | B26 | -DACK2 | | | | |
| A27 | SA4 | B27 | TC | | | | |
| A28 | SA3 | B28 | BALE | | | | |
| A29 | SA2 | B29 | VCC | | | | |
| A30 | SA1 | B30 | OSC | | | | |
| A31 | SA0 | B31 | GND | | | | |

| Pin No. | Description | Pin No. | Description | Pin No. | Description | Pin No. | Description |
|---------|-------------|---------|-------------|---------|-------------|---------|-------------|
| E1 | GND | F1 | GND | G1 | SDONE | H1 | -SERR |
| E2 | GND | F2 | GND | G2 | -SBO | H2 | AD15 |
| E3 | -PCINT1 | F3 | -PCINT3 | G3 | -CBE1 | H3 | AD14 |
| E4 | -PCINT2 | F4 | -PCINT4 | G4 | PAR | H4 | AD12 |
| E5 | VCC | F5 | VCC | G5 | GND | H5 | GND |
| E6 | KEY | F6 | KEY | G6 | KEY | H6 | KEY |
| E7 | VCC | F7 | VCC | G7 | GND | H7 | GND |
| E8 | -PCIRST | F8 | PCLKF | G8 | AD13 | H8 | AD10 |
| E9 | -GNT0 | F9 | GND | G9 | AD11 | H9 | AD8 |
| 10 | -REQ0 | 10 | GNT1 | G10 | AD9 | H10 | AD7 |
| E11 | GND | F11 | GND | G11 | -CBE0 | H11 | AD5 |
| E12 | PCLKE | F12 | -REQ1 | G12 | AD6 | H12 | AD3 |
| E13 | GND | F13 | AD31 | G13 | AD4 | H13 | AD1 |
| E14 | AD30 | F14 | AD29 | G14 | AD2 | H14 | AD0 |
| E15 | PCLKG | F15 | N.C | G15 | KEY | H15 | KEY |
| E16 | KEY | F16 | KEY | G16 | VCC | H16 | VCC |
| E17 | -GNT2 | F17 | -REQ2 | G17 | VCC | H17 | VCC |
| E18 | AD28 | F18 | AD27 | G18 | GND | H18 | GND |
| E19 | AD26 | F19 | AD25 | G19 | GND | H19 | GND |
| E20 | AD24 | F20 | -CBE3 | | | | |
| E21 | AD22 | F21 | AD23 | | | | |
| E22 | AD20 | F22 | AD21 | | | | |
| E23 | AD18 | F23 | AD19 | | | | |
| E24 | N.C. | F24 | N.C. | | | | |
| E25 | KEY | F25 | KEY | | | | |
| E26 | N.C. | F26 | N.C. | | | | |
| E27 | AD16 | F27 | AD17 | | | | |
| E28 | -FRAME | F28 | -IRDY | | | | |
| E29 | -CBE2 | F29 | -DEVSEL | | | | |
| E30 | -TRDY | F30 | -PLOCK | | | | |
| E31 | -STOP | F31 | -PERR | | | | |

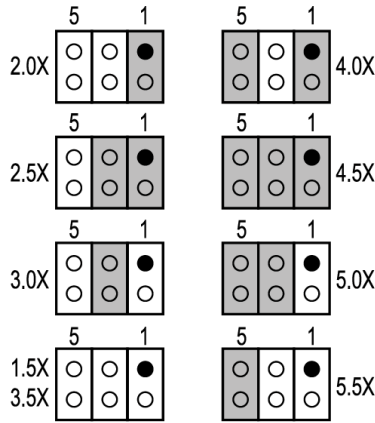
Appendix C. CPU Specification:

| CPU Brand/Type | Frequency | Ratio | V-Core/V-I/O |
|-----------------------|------------------|--------------|---------------------|
| AMD K6-166ALR | 66MHz | 2.5 | 2.9V / 3.3V |
| AMD K6-200ALYD | 66MHz | 3.0 | 2.9V / 3.3V |
| AMD K6-233ANR | 66MHz | 3.5 | 3.2V / 3.3V |
| AMD K6-266AFR | 66MHz | 4.0 | 2.2V / 3.3V |
| AMD K6-300AFR-66 | 66MHz | 4.5 | 2.1V / 3.45V |
| AMD K6-2-300 | 100MHz | 3.0 | 2.2V / 3.3V |
| AMD K6-2-350 | 100MHz | 3.5 | 2.2V / 3.3V |
| AMD K6-2-333 | 95MHz | 3.5 | 2.2V / 3.3V |
| AMD K6-2-380 | 95MHz | 4.0 | 2.2V / 3.3V |
| AMD K6-2-400 | 100MHz | 4.0 | 2.2V / 3.3V |
| AMD K6-3-450 | 100MHz | 4.0 | 2.4V / 3.3V |
| AMD K6-3-450 | 100MHz | 4.5 | 2.4V / 3.3V |
| INTEL-166 | 66MHz | 2.5 | 3.3V |
| INTEL-200 MMX | 66MHz | 3.0 | 2.8V / 3.3V |
| INTEL-233 MMX | 66MHz | 3.5 | 2.8V / 3.3V |
| IDT-PSMF200GA | 66MHz | 3.0 | 3.3V |
| IDT-PSME200GA | 66MHz | 3.0 | 3.5V |
| IDT-PSME225GA | 75MHz | 3.0 | 3.5V |
| IDT-PSME240GA | 60MHz | 4.0 | 3.5V |
| IDT-PSME250GA | 83MHz | 3.0 | 3.5V |
| IDT-PSME266GA | 66MHz | 4.0 | 3.5V |
| IDT-PSME300GA | 75MHz | 4.0 | 3.5V |
| IDT-W2A-3DFF200Gx | 66MHz | 3.0 | 3.3V |
| IDT-W2A-3DEE200Gx | 66MHz | 3.0 | 3.5V |
| IDT-W2A-3DEE225Gx | 75MHz | 3.0 | 3.5V |
| IDT-W2A-3DFF233Gx | 66MHz | 3.5 | 3.5V |
| IDT-W2A-3DEE233Gx | 66MHz | 3.5 | 3.5V |
| IDT-W2A-3DEE240Gx | 60MHz | 4.0 | 3.5V |
| IDT-W2A-3AEE266Gx | 100MHz | 2.33 | 3.5V |
| IDT WinChip2-300 | 100MHz | 2.5 | 3.5V |
| IBM 6X86-P166 | 66MHz | 2.0 | 2.8V / 3.3V |
| IBM 6X86-P200 | 75MHz | 2.0 | 2.8V / 3.3V |
| ST 6X86-P166 | 66MHz | 2.0 | 3.5V / 3.3V |

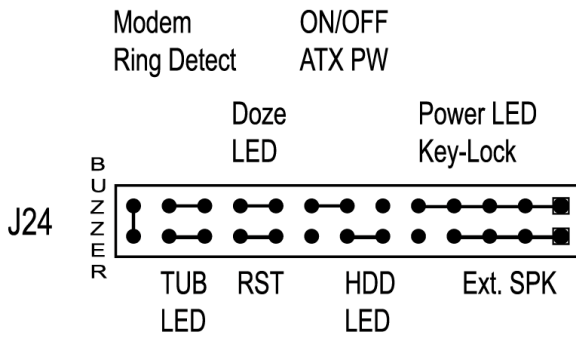
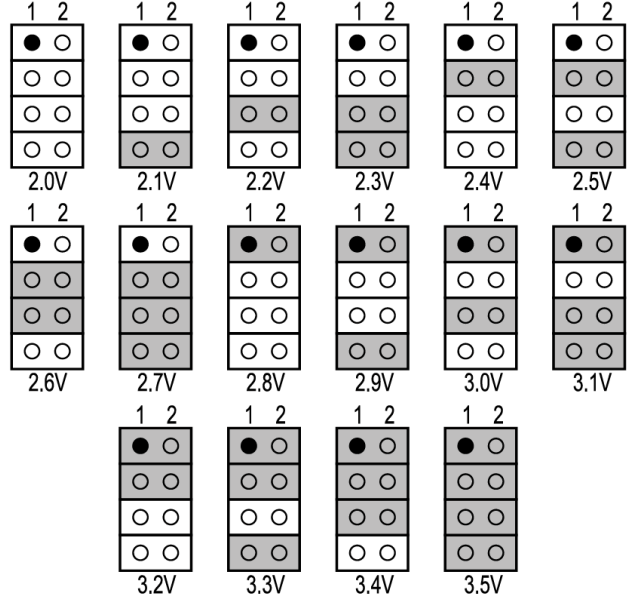
| CPU Brand/Type | Frequency | Ratio | V-Core/V-I/O |
|-----------------------|------------------|--------------|---------------------|
| CYRIX 6X86-P166 | 66MHz | 2.0 | 3.3V or 3.5V / 3.3V |
| CYRIX M2-266 | 83MHz | 2.5 | 2.9V / 3.3V |
| CYRIX M2-300GP | 66MHz | 3.5 | 2.9V / 3.3V |
| CYRIX M2-333GP | 83MHz | 3.0 | 2.9V / 3.3V |
| CYRIX M2-366GP | 100MHz | 2.5 | 2.9V / 3.3V |
| CYRIX M2-400GP | 95MHz | 3.0 | 2.2V / 3.3V |
| CYRIX M2-433GP | 100MHz | 3.0 | 2.2V / 3.3V |
| RISE MP6-266 | 100MHz | 2.2 | 2.8V / 3.3V |
| RISE MP6-333 | 95MHz | 2.5 | 2.0V / 3.3V |
| RISE MP6-366 | 100MHz | 2.5 | 2.0V / 3.3V |

The manufacturer reserves the right to make the improvement for this table at any time without pre-notice

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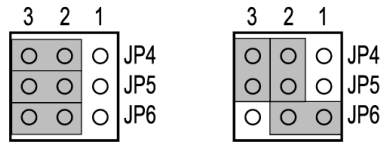


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60MHz

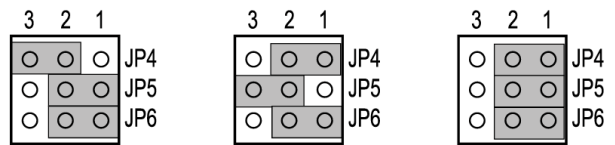
66MHz



75MHz

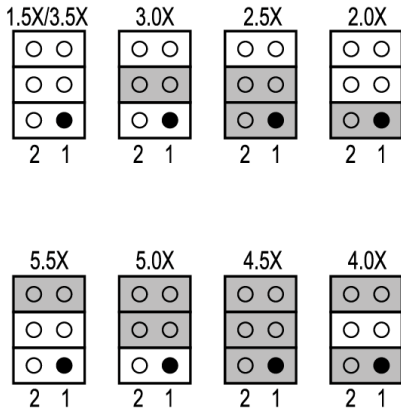
83MHz

100MHz

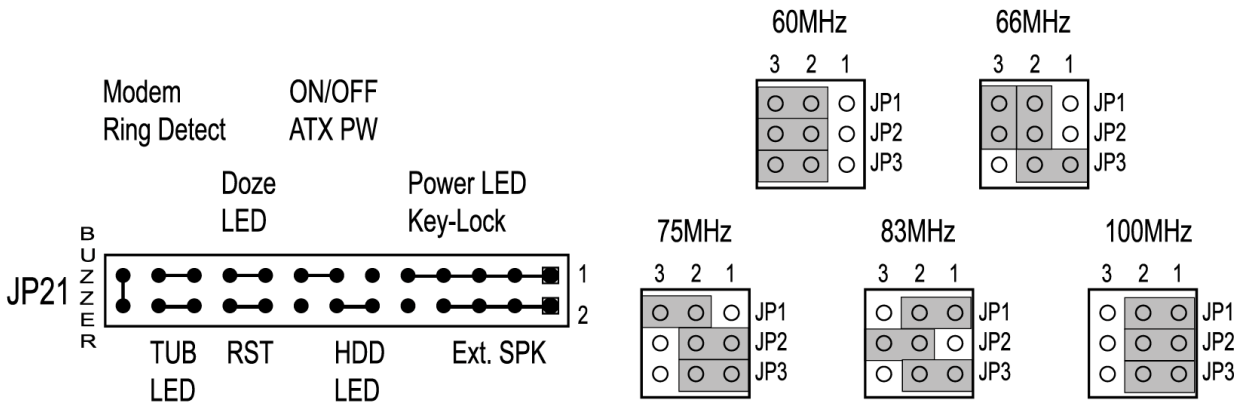
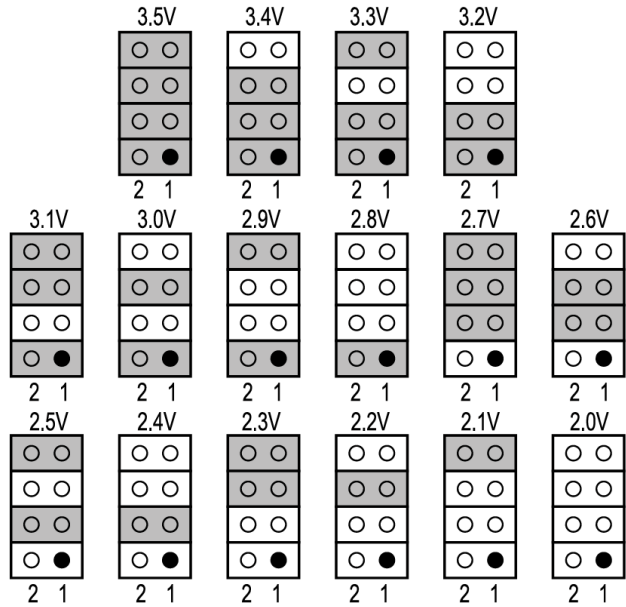


586NL

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