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Ben Myers (Mar 3, 1999)

Anigma Aries Mini-Desktop LPX PCI 486 Motherboard

· **Processor**
· Type 3 ZIF socket for Intel 486SX, 486DX, 486DX2, 486DX4, or Pentium OverDrive.
· Supports 5v CPUs; some boards support 3.3v CPUs.
· Supports 25mhz and 33mhz external bus clock speeds.

· **Expansion slots**
· Two styles of PCI riser card
· One ISA slot and one shared PCI/ISA slot, both left-facing; one ISA slot and one PCI slot, both right-facing
· One ISA slot and one shared PCI/ISA expansion slot, both left-facing

· **Chipsets**
· SMC FDC37C665 SuperI/O chip
· Intel 82425EX and 82426EX Aries motherboard chipset

· **Built-in graphics**
· Cirrus CL-GD5430 super VGA graphics controller
· 512KB non-expandable DRAM memory (4 256Kx4 45 ns. DRAMs at U24, U26, U28, U29)

· **Memory (parity or non-parity)**
· Three 32/36-bit 72-pin SIMM sockets.
· Supports 1M x 32/36 (4MB), 2M x 32/36 (8MB), 4M x 32/36 (16MB) SIMMs.
· Maximum memory is 48MB.
· Supports Fast Page Mode (FPM) memory only.

· **Cache memory**
· 8K or 16K CPU level 1 write back cache.
· Up to 128K asynchronous level 2 cache.

· **IDE**
· Primary PCI IDE connector on-board
· Secondary ISA IDE connector on-board

· **Floppy**
· Supports 360KB, 1.2MB, 1.44MB, 2.88MB floppy drives.

· **Serial / Parallel ports**
· Two on-board National Semi 16550-compatible serial ports
· One on-board parallel port

· **BIOS**
· Phoenix 4.04 Plug and Play BIOS on socketed 128KB Flash chip
· Latest flash BIOS is Phoenix 4.04.9.

· BIOS requires CPU which responds to CPUID instruction
· BIOS setup activated by pressing F2 only during Power On
Self-Test (POST)
· Supports EIDE hard disks up to 4.2GB IDE, EIDE CD-ROM drives

· **Keyboard**
· PS/2 style mini-DIN keyboard and mouse connectors

· **Form factor**
· Baby AT footprint (9.0" x 10.4")
The Gateway part number for this board is MBDPCI004AxWW. The
manufacturer's part number for this board is LP4IP1.

Note: This motherboard does not complete POST with early steppings of
486 processors which do not have the CPUID instruction.

WARNING: Although this motherboard is claimed to be switchable between
5v and 3.3v CPUs, and all samples seen to date do have the jumpers to
switch voltage, but some samples do not have the required electronic
components mounted at location U50 to support 3.3v operation. In our
opinion, 3.3v operation without an independent voltage regulator
socket is a risky proposition unless you can verify presence of the
voltage regulator circuitry on the motherboard.

MEMORY CONFIGURATION CHART

The following chart shows some of the possible memory configurations.
Installing unlike SIMMs in a different order may or may not work. If
memory parity checking is enabled (J29 pins 1-2), "x36" SIMMs must be
used. If parity is disabled (J29 pins 2-3), "x32" fast-page mode
(FPM) SIMMs may be also used. 4M indicates that one 1Mx36 or 1Mx32
SIMM is installed in the socket. 8M indicates that one 2Mx36 or 2Mx32
SIMM is installed in the socket. 16M indicates that one 4Mx36 or 4x32
SIMM is installed in the socket. Note that three (3) 8M SIMMs is not
an acceptable combination.

Socket -> U59 U61 U64
Memory Size Bank 0 Bank 1 Bank 2
4MB 4M
8MB 4M 4M
12MB 4M 4M 4M
16MB 8M 4M 4M
16MB 8M 8M
16MB 16M
20MB 8M 8M 4M
20MB 16M 4M
24MB 16M 4M 4M
32MB 16M 16M
36MB 16M 16M 4M
48MB 16M 16M 16M

FIXED IRQ ASSIGNMENTS

IRQ Device
6 Floppy controller
14 Primary IDE controller
15 Secondary IDE controller

INTERNAL & EXTERNAL DEVICE CONNECTORS

Connector Device
J1 Video monitor connector (external)
J2 Parallel port (external)
J3 COM2 serial port (Port B, external)
J4 COM1 serial port (Port A, external)
J5 PS/2 style mouse (external)
J6 PS/2 style keyboard (external)
J8, J16 PCI riser card slot
J12 Video feature connector
J13 Secondary IDE connector (ISA)
J14 Floppy connector
J15 Primary IDE connector (PCI)
U38 Type 3 ZIF processor socket
U60 Dallas DS12887 CMOS/clock/battery or equivalent

If a Dallas DS12887 is installed in socket U60, an external battery
does not have to be connected at J37. The Dallas DS12887 has an
internal battery with an estimated lifetime of 8-10 years.

MOTHERBOARD SWITCH & JUMPER SETTINGS

A small crescent marks the location of pin 1 or pins 1-2 in each
jumper block group.

J23 CPU voltage
Pins 1-3, 2-4 3.3 volt CPU (**WARNING**! DO NOT USE UNLESS COMPONENTS
PRESENT AT U50)
Pins 3-5, 4-6 5 volt CPU (default)

External bus speed selection

BUS SPEED	J26	J27	J28
25MHz	2-3	2-3	2-3
33MHz	2-3	1-2	1-2
50MHz	1-2	1-2	Don't Care

J20 SL CPU type
Pins 1-2 Non-SL CPU "reserved"
Pins 2-3 SL-capable CPU (default)

J21 SX CPU type
Pins 1-2 Non-SX CPU
Pins 2-3 SX CPU

J22 CPU selection
Pins 1-2 486SX OverDrive, 486DX OverDrive
Pins 3-4 486SX, DX, DX2
Pins 5-6 486DX2-writeback, Pentium OverDrive (also use for AMD
Am5x86-133)

J24 On-board I/O enabled
Pins 1-2 Disabled
Pins 2-3 Enabled (default)

J25 Flash BIOS Boot Block
Pins 1-2 Enabled
Pins 2-3 Disabled (default)

J29 Memory parity checking
Pins 1-2 Enabled
Pins 2-3 Disabled (default)

J32 IDE LED
Pin 1 - Signal
Pin 2 - Ground

J37 External battery connector (voltage unknown)
Pin 1 - Battery Positive
Pin 2 - no connector
Pin 3 - Ground
Pin 4 - Ground

J35 External speaker
Pin 1 - Speaker
Pin 2 - no connector
Pin 3 - Ground
Pin 4 - +5 volts DC

J33 Keylock / Power LED
Pin 1 - Power LED signal
Pin 2 - no connector
Pin 3 - Ground
Pin 4 - Keyboard lock signal
Pin 5 - Ground

J34 Password clear
Pin 1 - Signal
Pin 2 - Ground

J31 Reset switch
Pin 1 - Signal
Pin 2 - Ground

J36 Processor cooling fan
3-pin header (Pin values unknown)

J30 Turbo LED
Pin 1 - Signal
Pin 2 - Ground

J10 and J11 ECP DMA Channels
Pins 1-2 Channel 1
Pins 2-3 Channel 3 (default)

J18 Secondary IDE DMA
Pins 1-2 Disabled
Pins 2-3 Enabled (default)

J17 Seconary IDE IRQ
Pins 1-2 IRQ 14
Pins 2-3 IRQ 15 (default)

J19 CPU clocking
Pins 1-2 - 2.5x clock
Pins 2-3 - 2x clock
No jumper - 3x clock (default)

External Cache Configuration

Cache Size SRAM Required & Socket Locations
0K None

128K (4) 32Kx8 SRAM 20 ns. or faster in sockets U5-U8, (2) 32Kx8
SRAM 15 ns. in sockets U22 & U23

Note: For correct installation of SRAM chips, notched end of chip must
be aligned with notched end of socket, and all pins must fit snugly in
socket holes.