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Title:    Notes on Gateway 2000 Anigma BAT 486 IP Motherboard
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Revision: 06/26/97
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1. General Information

This motherboard is used in 486 systems by Gateway 2000.
It is made by Anigma and is referred to as the BAT or Anigma BAT or
BAT486IP (not to be confused with Anigma BAT2). The original BIOS
supports large drives up to 2.1GB (4095 cylinders). The drive type
must be set to AUTO for drives over 504MB. The Promise EIDEMAX card
should work to support drives over 2.1GB. See section below on using
EIDEMAX.

There is a problem with using the Intel Pentium Overdrive CPUs on this
board. With a POD installed, the system will hang on any DMA access.
This includes any access of the diskette drives. Since this board also
uses DMA for hard drive access by default, hard drive access will not
work with POD installed if set to DMA in CMOS setup.

At Gateway2000's request, we have created a patch for the original
BIOS to fix this problem. This patch is available on our web site. We
do not currently have a BIOS upgrade for this board and will probably
not develop one. If the patched version of the BIOS is installed, the
BIOS version will be indicated on power-on as 1.03.MFI01 (the version
will not appear differently with a reset or CTL-ALT DEL reboot).

If the POD is installed, it will not be ID'ed correctly by the BIOS
on bootup. The text "operating at over 100 MHz" will be displayed if
the board is set to 33 MHz. The text "operating at 66MHz" will be
displayed if the board is set to 25MHz. The type of CPU will not be
indicated.

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2. Using the Promise EIDEMAX on the Anigma BAT Motherboard

As far as we know, GW2K normally supplied a PCI IDE adapter card for
the hard drive on this system. This would probably be due to the
limitation of the onboard IDE, which is limited to Standard PIO Mode,
since there is no local-bus onboard IDE controller chip. (The BAT
board can also use DMA for hard drives).

The EIDEMAX should work fine with hard drives plugged into the onboard
IDE port as long as the add-in PCI adapter is removed, the IDE port
on the EIDEMAX is disabled, and jumper J41 is set to pins 1-2 for
IRQ14 (pins 2-3 is IRQ15). J41 is located between 2 of the ISA slots.
The Promise EIDEMAX can also be used as a secondary IDE interface in
addition to the onboard primary interface. The EIDEMAX should also
work as a primary interface as long as J41 on the motherboard is set
to IRQ15. All hard drives over 504MB should be set to Type 1 in CMOS
setup if using the EIDEMAX card.

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3. Original BIOS Setup Options - Phoenix A486 1.03
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GPCI05

         Gateway 2000 PCI Local Bus BIOS

486 DX2 processor detected operating at 66MHz

(no summary screen is displayed)
(no setup prompt is displayed - unless error condition - press F2)

Press CTL-ALT-S on bootup or at DOS prompt to enter Setup.

Phoenix Setup Utility Version 1.00   (4 screens)

Page 1 of 4   ** Standard System Parameters **

System Time: (default - 00:00:00)
System Date: (default - Jan 01, 1990)

Diskette A: 360,720,1.2,1.44,2.88,Not-installed (default - 1.4)
Diskette B: 360,720,1.2,1.44,2.88,Not-installed (default - Not installed)

Hard Disk 1: Type1-43,Auto,User1,2,3,4,Not-installed(default - Type 2)
Hard Disk 2: Type1-43,Auto,User1,2,3,4,Not-installed(def - Not-installed)
Hard Disk 3: Type1-43,Auto,User1,2,3,4,Not-installed(def - Not-installed)
Hard Disk 4: Type1-43,Auto,User1,2,3,4,Not-installed(def - Not-installed)

Base Memory: Auto-detected, Alterable
Extended Memory: Auto-detected, Alterable

Video Card: Mono, CGA40, CGA80, EGA/VGA, Not-installed
Keyboard: Installed, Not-installed (default - Installed)
CPU Speed: Slow, Fast - (default - Fast)

System Password: Disabled, Enabled
Server Mode: Disabled, Enabled
Numlock on at boot: No, Yes (default - Yes)

Page 2 of 4 ** PCI Device Configuration **

Multimedia Card: Not Installed, Installed (default - Not Installed)
Parity Checking: Disabled, Enabled (default - Disabled)
I/O Address: (default - D000h)
Memory Address:

Device Select:
  Latency Timer:
  Enable Device:
  Enable Master:

PCI Bus IRQ:

Page 3 of 4   ** Intel 82420 PCI Chip Set Feature Control **

NMI Handling Mode: Disabled, Enabled (default - Disabled)
DRAM Performance Mode: Disabled, Enabled (default - Enabled)

L1 & L2 Cache State: Enabled, Disabled (default - Enabled)
L2 Cache Mode: Write-back, Write-through

Video BIOS: Shadowing Enabled, Shadowing Disabled (default - Enabled)

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-- 101/102 Keyboard Only --
Auto Repeat Keyboard: Enabled, Disabled (default - Enabled)
Auto Repeat Delay: 250, 500, 750, 1000 ms (default - 250ms)
Auto Repeat Rate: 30.0, 26.7, 24.0, 21.8, 20.0, 18.5, 17.1, 16.0, 15.0,
                  13.3, 12.0, 10.9, 10.0, 9.2, 8.6, 8.0, 7.5, 6.7, 6.0,
                  5.5, 5.0, 4.6, 4.3, 4.0, 3.7, 3.3, 3.0, 2.7, 2.5, 2.3,
                  2.1 ,2.0 chars/sec (default - 30.1)


Quick Boot: Disabled, Enabled (default - Disabled)


Page 4 of 4   ** Super I/O Chipset Feature Control **


COM A Address:     COM1 3F8, COM3, Disabled  (default - COM1 3F8)
COM A IRQ:         IRQ4, IRQ5, None  (default - IRQ4)
COM B Address:     COM2 2F8, COM4, Disabled  (default - COM2 2F8)
COM B IRQ:         IRQ3, IRQ9, None   (default - IRQ3)
COM3/COM4 Address: 3E8/2E8,  2E8/2E0, 220/228, 338/238 (default - 3E8/2E8)

Parallel Port:     LPT1 3BC, LPT2 378, LPT3 278, Disabled (default - LPT1)
Parallel Port IRQ: IRQ7, IRQ5, None (default - IRQ7)
Parallel Port Mode: Input/Output, EPP Mode, ECP Mode, EPP and ECP, Output Only
PS/2 Mouse:        Enabled, Disabled (default - Enabled)

Hard Disk Data Transfer Method:  - Onboard Controller -

Drive 0: DMA, Standard PIO, 8 Sector Block PIO, Auto Size Block PIO
Drive 1: DMA, Standard PIO, 8 Sector Block PIO, Auto Size Block PIO

Hard Disk Data Transfer Method:  - ISA Add-in Controller -

Drive 0: Standard PIO, 8 Sector Block PIO, Auto Size Block PIO
Drive 1: Standard PIO, 8 Sector Block PIO, Auto Size Block PIO
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4. Features of the Anigma BAT 486 IP Motherboard
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This board can be identified by marking silkscreened on underside of
board at front right corner: BAT486Ip

Can also be identified just by looking at chips and layout.
Can also be identified by BIOS version (Phoenix 1.03)
May also have serial no. sticker between ISA slots with string BAT486IP.

Uses Intel Saturn (Saturn 1) chipset:
82432TX, 82424TX, 82378IB

3 PCI slots, 5 ISA slots (1 shared)
ZIF socket 3

4 72-pin SIMM slots - bank 0 to the right (toward the IDE connector)

PS/2 mouse connector
PS/2 keyboard connector
  (to the right if viewed from front - or closest to the corner)

SMC FDC37C665QF I/O controller chip

2 onboard COM ports
1 onboard LPT port

1 onboard floppy interface - pin 1 is towards back of board
1 onboard IDE interface - pin 1 is towards back of board

Intel N28F001BXT flash chip -  on some copies of this board the
  flash chip is socketted, on some boards it is soldered on
Dallas DS12885S clock chip - soldered on
Intel 8242 keyboard controller - soldered on
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256KB External cache - soldered on
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5. Jumper Settings on Anigma BAT 486 IP Motherboard
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Most jumper settings are silkscreened onto motherboard.
Most jumper pins are numbered.
Pin 1 is indicated on all jumpers by half-circle.

Battery Voltage

J22  (located just in front of IDE connector)

   1-2  6.0 volts
   3-4  4.5 volts
   5-6  3.6 volts

   NOTE - May get error message "RTC failure" on every boot if no
   battery is instaled.

Password Clear

J25  (located just in front of IDE connector)

   ON  then powerup to erase password
   OFF normal operation

Cache Size

J33  (located just to the right of the CPU socket)

   1-2  128K
   3-4  256K (default)

Boot Block Recovery

J29  (located just to the right of the CPU socket)

   2-3 Normal operation
   1-2 Boot from recovery disk

Onboard I/O Controller

J31  (located just to the right of the CPU socket)

   1-2 disabled
   2-3 enabled  default)

IDE DMA

J32   (located just to the right of the CPU socket)

   1-2 disabled
   2-3 enabled

Internal Cache Mode

J36   (located just to the right of the CPU socket)

    1-2  L1 write-through
    2-3  L1 write-back
    NOTE: This is incorrectly identified as External Cache Mode in
    some Gateway 2000 documentation for this board.

External Cache Mode

J34   (located just to the right of the CPU socket)
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    1-2  L2 write-through
    2-3  L2 write-back
    NOTE: This is incorrectly identified as Internal Cache Mode in
    some Gateway 2000 documentation for this board.


CPU Speed

J37   (located just to the right of the CPU socket)

    1-2  25 or 50 MHz
    3-4  33 or 66 MHz

CPU Voltage

J5   (located behind ISA slots at back of board)

    1-3, 2-4  3.3 volts
    3-5, 4-6  5 volts (default)

PCI IRQ

J4   (located behind PCI slots at back of board)

    1-2  IRQ9
    3-4  IRQ10
    5-6  IRQ11 (default)
    7-8  IRQ15

ECP DMA

J23  (located on left edge of board)

    1-2  DRQ1 (default)
    2-3  DRQ3

ECP DMA

J27 (located on left edge of board)

    1-2  DAK1 (default)
    2-3  DAK3

Memory Parity

J7  (located behind PCI slots on back edge of board)

    1-2  Enabled
    2-3  Disabled (default)

Onboard IDE IRQ

J41 (located between innermost ISA slots)

    1-2  IRQ14 (default)
    2-3  IRQ15

    This appears to change the onboard IDE port address as well as
    the IRQ. (IRQ14/1F0, IRQ15/170)

Burn-in Test

J26  (located just in front of IDE connector)

    Factory use only
    OFF for normal operation
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