

To:A. R. Kerrcc:K. Crady
S. -K. Pan
J. WebberFrom:J. EfflandDate:26 January 1999

Subject: Damage to the JT-2 Computer Motherboard

This memo discusses the sequence of events that resulted in a damaged motherboard on the computer installed in the JT-2 rack.

A 200 MHz CPU upgrade kit was ordered by Kirk Crady in September to upgrade the processor from 120 MHz to 200 MHz in the Gateway G5-120 computer, which was used in the JT-2 rack. Attachment 1 shows Kirks purchase requisition, which specifies the required part along with a recommended vendor:

Evergreen Pentium-200MMX Upgrade chip Evergreen Technologies MFR PN 376 (www.hardwarestreet.com list \$98.51)

ttachment 2 is the packing list, received with the part from Highwave Technology, Inc, the vendor selected by NRAO purchasing. That packing list specifies the contents as:

CPU-I, P55C/200 Intel Pentium MMX 200 MHz

The packing list was the only paperwork provided with the part. (Evergreen provides installation instructions with their CPU upgrades.) The NRAO Purchase Receiver, shown in Attachment 3 specifies:

INTEL PENTIUM 200MMX UPGRADE

After this CPU was installed in the Gateway computer, the machine would hang every few days, usually at night. We also noticed that the clock speed, as reported by the shareware program *Wintune*, was 210 MHz rather than the expected 200 MHz.

In December, while investigating the cause of these occasional system hang-ups, we removed the heat sink from the CPU and determined that it was actually a normal 200-MHz Pentium MMX chip. Since the computer was operating normally most of the time, we attempted to configure the jumpers on the motherboard to the settings required for this CPU. However, in the process of selecting the proper voltage and clock speed, the motherboard somehow became damaged and no longer passes its power on self-test, even with the original 120 MHz CPU installed.

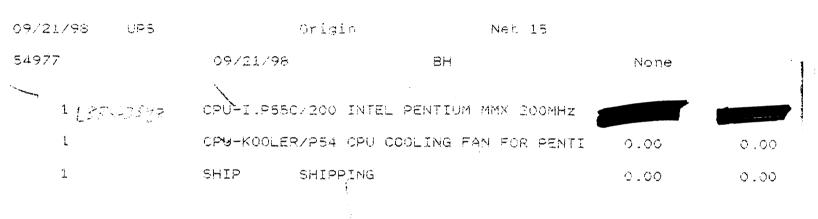
The motherboard alone cannot be easily replaced on this machine because it is an "OEM Zappa" board, manufactured by Intel exclusively for Gateway, that has a unique connector arrangement. A replacement 350-MHz Pentium II motherboard and case, from Gateway, is expected to cost about \$1080.

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PURCHASE PAGE NO. **PURCHASING CENTER - SOCORRO** 9/23/98 RECEIVER DATE 54977-000-OP ORDER NO. VENDOR NO. 6005081 . 44 11 S ASSOCIATED UNIVERSITIES INC HIGHWAVE TECHNOLOGY INC HIP NATIONAL RADIO ASTRONOMY OBS Ē **1520 MONTAGUE EXPRESSWAY** 2015 IVY ROAD SAN JOSE CA 95131 **SUITE 219** Ţ R CHARLOTTESVILLE VA 22903 DATE ORDERED 09/23/98 REFERENCE BEN HO REQUIRED DELIVERY DATE 09/29/98 TAKEN BY U/M OPEN QUANTITY RECEIVED REQUISITIONER DATE RECEIVED ACCOUNT# DESCRIPTION 12004.3030.0107 INTEL PENTIUM 200MMX UPGRADE EA 1 K CRADY CHIP W/FAN Confirming order. DO NOT DUPLICATE K CRADY Conglit. RÉCEIVER 54977-000-OP