PowerPC™

PowerPC 603/604 Reference Design Release 2.1 Addendum

MPRHARESU-01

This document contains additional information of interest to users of release 2.1 of the IBM PowerPC 603/604 Reference Design.

February 1996

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This document contains information concerning revision 2.1 of the PowerPC 603/604 Reference Design.

Motherboard Level . . Alaris 2.1
Microboot Level 95100506
ARC Level . . . . IMD 3.0 (from Kirkland ARC 1.47) for NT 1057 Blue and NT 1057 Power Managed
HAL Level . . . . Supplied on the OEM disc for the supplied version(s) of Windows NT.
Windows NT Level . . 1057Z PM
Documentation . . . . . PowerPC 603e/604 Reference Design Technical Specification (MPRH01TSU-02)

Note 1 . . . . Acculogic 4HP Card

Some Acculogic 4HP cards use an older version of SMC's SuperIO chip, FDC37C666-QFP, which fails to read the ARC from the floppy while the system is writing to the hard drive, and instead returns a Media I/O error.

Suggestion . . . . . . Use the new version (FDC37C666-GT) of the SMC SuperIO chip.

Note 2 . . . . NCR 53C810 SCSI Controller

On PCI configuration writes to the SCSI controller, the 664 may wait several (>3) PCI clocks before asserting IRDY#. This SCSI controller appears to latch in the write data when it asserts TRDY# even if IRDY# is not yet asserted. NCR states that this problem exists on NCR part number 609–0391399, but that it has been corrected on later parts.

Suggestion . . . . . . Use part number 609–1391635 or later.

Note 3 . . . . 660 Bridge Errata Reminder

The reference design uses rev 1.1 of the IBM27-82664, which has various errata. The appropriate workarounds have been implemented on the reference design, as described in section 13 (Errata) of the reference design technical specification.

The only uncorrected 660 errata that apply to the reference design are #4 and #15.

Suggestion . . . . . . For 660 errata #4, do not write to the Flash™ while it is in-system; program the Flash externally. For 660 errata #15, do not use ECIWX or ECOWX.

Note 4 . . . . Software Considerations

The reference design boards were shipped with prototype-level reference software which had the required functionality, but which exhibited certain difficulties, which are most efficiently addressed by obtaining currently available software, possibly from one of the following vendors:

Softex	Firmworks
Mahendra Bhansali	John Semion
(512) 452 – 8836	(415) 917 – 0100

To assist those who have not yet obtained this software, the following sections briefly describe the various difficulties and their temporary workarounds.

Note 4.1 . . . . . PCI busmasters do not function correctly in PCI slot 1.

Suggestion . . . . . . Install a video graphics card (no interrupts) in PCI slot 1. This will ensure that no PCI busmaster occupies the slot.

Note 4.2 ..... During NT install, the ARC can not be written to 1 GB IDE Maxtor drive 71260A.

Suggestion ...... Use one of the following drives instead:

Western Digital Caviar 3100	1 GB IDE
Corner CDA 1080A	1 GB IDE
Maxtor MXT–540A	540MB IDE

Note 4.3 ..... System can hang during micro-boot or shutdown-and-restart, or fail to see an IDE CDROM as the boot device.

Suggestion ...... Reboot. If the problem persists, cycle the power.

Note 4.4 ..... NT can fail to load from IDE drive if an L2 is present.

Suggestion ...... Power down the system and remove the L2 SRAM. Reboot the system without the L2 SRAM until NT loads properly. Power down and reinstall the SRAM. Reboot.

Note 4.5 ..... ARC can write NVRAM incorrectly if NVRAM contains garbage.

Suggestion ...... If the failure occurs while installing Windows NT from CDROM onto a system that has garbage in the NVRAM (such as when NT is initially loaded), the Installation and Setup step must be done twice. When the NVRAM has been written properly, the Start Windows NT option will be the first option shown in the Boot Loader menu.

If the failure occurs when the NVRAM battery is removed and replaced (to simulate data corruption in NVRAM), the following steps are needed to boot the Windows NT already residing on the hard drive:

1. Set up date and time during micro boot.
2. At the PowerPC Portable Boot Loader main menu screen, select the Installation and Setup Service option, since the Start WIndows NT option is not there.
3. Choose the Advance Setup – System Management Service – Erase All System Selection – Add a System Selection options.
4. Choose the multi(1), scsi(0), disk(6), rdisk(0), and partition(2) options.
5. Press <enter> to accept the next 6 consecutive default values.
6. Choose the Change System Selection option and select Windows NT to Edit.
7. Modify OSLoadPartition to equal multi(1) scsi(0) disk(6) rdisk(0) partition(3). This assumes that NT is loaded in the 3rd partition.
8. Back out to the main menu and choose the Start Windows NT option.
9. If the system hangs, cycle the power and go to step 2.

Note 4.6 ..... NT (on a SCSI drive) boot can fail after adding an IDE drive.

Suggestion ...... Invalid Device Name then correct the environmental variables for the boot device:

1. At the PowerPC Portable Boot Loader main menu screen, select Installation and Setup Service – Advance Setup – System Management Selection – Change System Selection – <enter>.
2. Change the System Partition, OS Loader, and OS Load Partition (path) environment variables from mult(1) scsi(0) disk(6) rdisk(0) partition(2)
   to mult(0) scsi(1) disk(6) rdisk(0) partition(2).
3. Start NT from the main menu and it will boot.

Note 4.7 ..... NT device driver error (video CD driver) occurs with 4x SCSI CDROM.

Suggestion ...... Use the driver section of the control panel to uninstall the video-CD driver.

USA and Canada:
IBM Microelectronics Division
1580 Route 52, Bldg. 504
Hopewell Junction, NY 12533-6531
Tel: (800) PowerPC
Fax: (800) PowerFax
http://www.chips.ibm.com
http://www.ibm.com
ftp://ftp.austin.ibm.com/pub/PPC_support

Document Number: MPRHARESU-01