PowerPC™

The PowerPC 601™ Design Kit Update

Application Note AN-PPC-005

Updating PowerPC 601 Board Designs
to the latest hardware level.

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This application note is directed towards designers and system developers who have or may implement a PowerPC 601 design using the *PowerPC 601 System Design Kit* documentation (MPRKITV1-02 and MPRKITV2-02) and/or design files as a reference. This application note provides the most current information about the PowerPC 601 motherboard design.

The changes in this package provide instructions on updating a PowerPC 601 board design to the latest hardware level and are listed below as follows:

1. Update the PowerPC-to-PCI Bridge components: IBM27 82653 to Rev. 4.0 (8190655) and IBM27-82654 to Rev. 2.1 (93G9874). Included with this package is Application Note AN-PPC-001, *Updating PowerPC System Designs from IBM27-82650 Revision 2.0 to Revision 2.1*, which provides instructions on the changes that are necessary to update the board design and schematics. See the *IBM27-82650 PowerPC to PCI Bridge Chipset Errata Summary* (MPR650UMU-03) for detailed information regarding chipset errata.
2. Change the System I/O Bridge (Intel 82378) from Version IB to Version ZB. Replacing the Version IB part with Version ZB results in changes to the interrupt system and the removal of certain errata. All PCI interrupts now share IRQ15, which is no longer used as an ISA interrupt. IRQ9 and IRQ11 are now available as ISA interrupts, . PCI interrupts now go directly to the 82378. Application Note AN-PPC-002, *Upgrading PowerPC 601 Evaluation Boards to Support the Intel SIO 82378ZB*, is included with this package to provide the user with detailed implementation instructions.
3. Implement a board ID register set to FEh. Bias the XBus with either 10K Ohm pull-up resistors to +5V or 250 Ohm pull-down resistors to GND. Please reference Section 11.0, System I/O Address Maps, in the revised *PowerPC 601 Evaluation Board Technical Specification and User's Guide* for a detail description regarding board ID register implementation.
4. Add 10K Ohm pull-up resistors to +5V on the following IRQ lines: IRQ3, IRQ4, IRQ9, IRQ10, IRQ11, and IRQ12.
5. Add a 33uF decoupling capacitor to the SCSI terminator 'Term Power' signal, U32 pin – 14.

A revised *PowerPC 601 Evaluation Board Technical Specification and User's Guide* is available reflecting the above described changes and is included with this package. The document is a TERS3820 file, and the filename is 601KITUP. The document is approximately 231 pages in length. Please see the Announce file included with this package for instructions on how to unterse the file.

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