

PRELIMINARY PRODUCT BRIEF

μ PD720121

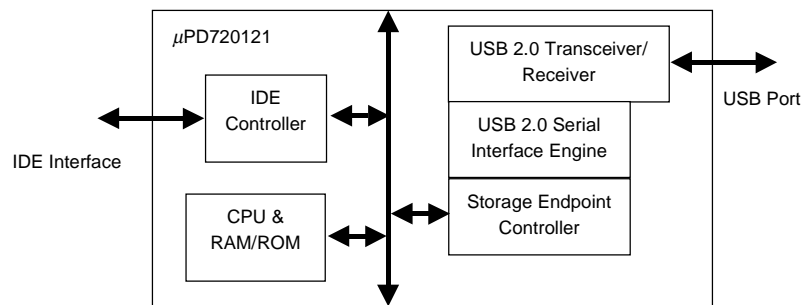
UNIVERSAL SERIAL BUS 2.0 TO IDE BRIDGE

The μ PD720121 is designed to perform a bridge between USB 2.0 to ATA/ATAPI. The μ PD720121 complies with the Universal Serial Bus Specification Revision 2.0 and works up to 480 Mbps. The μ PD720121 integrates RISC processor, IDE controller, Endpoint controller, RAM, serial interface engine, and USB 2.0 transceiver into a single chip. The USB 2.0 protocol and class specific protocol (Bulk only protocol) are handled by USB 2.0 transceiver, serial interface engine, and Endpoint controller. And the transport layer is performed by NB85E RISC processor which is in the μ PD720121. The software to control the μ PD720121 is located in the external ROM (Flash or Mask ROM).

FEATURES

- Compliant with Universal Serial Bus Specification Revision 2.0 (Data Rate 12/480 Mbps)
- Compliant with ATA/ATAPI-4 (PIO Mode 0-4, DMA Mode 0-2, Ultra DMA/33 Mode 0-2)
- One USB 2.0 high-speed transceiver / receiver with full-speed transceiver / receiver
- USB 2.0 High-speed or Full-speed packet protocol sequencer (Serial Interface Engine)
- Automatic chirp assertion and full-/high-speed mode change
- USB Reset, Suspend and Resume signaling detection
- Can support remote wakeup functionality.
- Supports power control functionality for ATAPI device as CD-ROM.
- Supports set feature (TEST_MODE) functionality.
- System clock is generated by 30 MHz X'tal
- 3.3 V power supply

BLOCK DIAGRAM



PACKAGE

- 120-pin plastic TQFP (Fine pitch) (14×14)
- 144-pin plastic LQFP (Fine pitch) (20×20)



USB logo is a trademark of USB Implementers Forum, Inc.

- **The information in this document is current as of May, 2001. The information is subject to change without notice. For actual design-in, refer to the latest publications of NEC's data sheets or data books, etc., for the most up-to-date specifications of NEC semiconductor products. Not all products and/or types are available in every country. Please check with an NEC sales representative for availability and additional information.**
- No part of this document may be copied or reproduced in any form or by any means without prior written consent of NEC. NEC assumes no responsibility for any errors that may appear in this document.
- NEC does not assume any liability for infringement of patents, copyrights or other intellectual property rights of third parties by or arising from the use of NEC semiconductor products listed in this document or any other liability arising from the use of such products. No license, express, implied or otherwise, is granted under any patents, copyrights or other intellectual property rights of NEC or others.
- Descriptions of circuits, software and other related information in this document are provided for illustrative purposes in semiconductor product operation and application examples. The incorporation of these circuits, software and information in the design of customer's equipment shall be done under the full responsibility of customer. NEC assumes no responsibility for any losses incurred by customers or third parties arising from the use of these circuits, software and information.
- While NEC endeavours to enhance the quality, reliability and safety of NEC semiconductor products, customers agree and acknowledge that the possibility of defects thereof cannot be eliminated entirely. To minimize risks of damage to property or injury (including death) to persons arising from defects in NEC semiconductor products, customers must incorporate sufficient safety measures in their design, such as redundancy, fire-containment, and anti-failure features.
- NEC semiconductor products are classified into the following three quality grades:
"Standard", "Special" and "Specific". The "Specific" quality grade applies only to semiconductor products developed based on a customer-designated "quality assurance program" for a specific application. The recommended applications of a semiconductor product depend on its quality grade, as indicated below. Customers must check the quality grade of each semiconductor product before using it in a particular application.
"Standard": Computers, office equipment, communications equipment, test and measurement equipment, audio and visual equipment, home electronic appliances, machine tools, personal electronic equipment and industrial robots
"Special": Transportation equipment (automobiles, trains, ships, etc.), traffic control systems, anti-disaster systems, anti-crime systems, safety equipment and medical equipment (not specifically designed for life support)
"Specific": Aircraft, aerospace equipment, submersible repeaters, nuclear reactor control systems, life support systems and medical equipment for life support, etc.

The quality grade of NEC semiconductor products is "Standard" unless otherwise expressly specified in NEC's data sheets or data books, etc. If customers wish to use NEC semiconductor products in applications not intended by NEC, they must contact an NEC sales representative in advance to determine NEC's willingness to support a given application.

(Note)

- (1) "NEC" as used in this statement means NEC Corporation and also includes its majority-owned subsidiaries.
- (2) "NEC semiconductor products" means any semiconductor product developed or manufactured by or for NEC (as defined above).