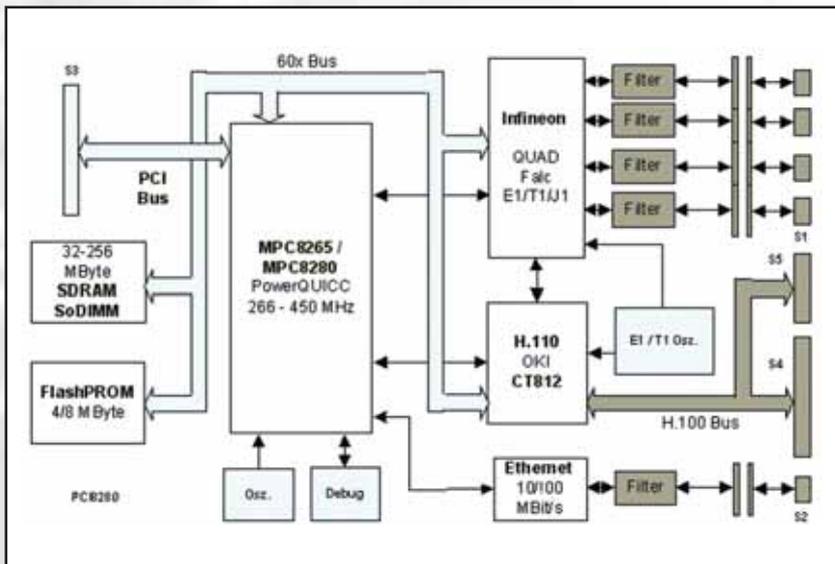# Telecommunication
PCI Card

NPCI-8280-4E1/T1/J1

The NPCI-8280-4E1/T1/J1 is a high-performance PCI card for Telecom applications. It is based on the Motorola versatile MPC8280 "PowerQuicc II" processor, supporting four E1/T1/J1 ports on the front panel and a 100BaseT Ethernet port on the rear side of the card panel, all using using standard RJ45 connectors. Equipped with an H.100/H.110 TDM bus controller and due to the CPU providing up to 855 MIPS the NPCI-8280-4E1/T1/J1 is optimized for use in sophisticated telecom applications in SS7, ISDN, ATM or VoP environments.

Overview

The NPCI-8280-4E1/T1/J1 is a telecommunications interface board in PCI form-factor. Based on the Motorola MPC8280 "PowerQuicc II" CPU the NPCI-8280-4E1/T1/J1 is targeted at telecom applications with a need for a powerful and versatile platform, such as applications using SS7, ISDN, ATM, VoP or any combination of these protocols.

Hardware

The NPCI-8280-4E1/T1/J1 is a single size standard PCI short form card that can be plugged into any PC offering a PCI extension slot that provides 3.3V signalling. Using the on-chip PCI bridge of the MPC8280, the NPCI-8280-4E1/T1/J1 is PCI Rev. 2.2 compatible, also tolerating 5V signalling by implementation of voltage-level FET switches. The MPC8280 PowerQUICC II processor provides computing resources up to 855 MIPS (450MHz). For less demanding applications the MPC8280 can be replaced by the pin-compatible MPC8265.

The four primary rate line interfaces (E1/T1/J1) are driven using the Infineon PEB22554 "Quad Falc" framer, and are available on two standard RJ-45 connectors on the front panel.

In addition to the four E1/T1 lines the NPCI-8280-4E1/T1/J1 offers a RS232 serial interface sharing a connector with the BDM/JTAG interface and a 10/100 Megabit/sec (10/100BaseT) Ethernet interface on a RJ45 connector to be used with a standard CAT5 UTP cable.

Thus the NPCI-8280-4E1/T1/J1 is the generic platform for any implementation switching between the classic TDM streams as on E1/T1/J1 and any new generation of PC based packetized data applications.

Moreover, the 100BaseT port can serve as a configuration and management port, i.e. for SNMP.

The onboard OKI CT812 H.110 bus controller offers access to the H.100 TDM (Time Division Multiplex) bus on a standard male header connector located at the upper edge of the card.

Equipped with up to 256MB SDRAM and either 16 or 32MB onboard erasable Flash-Memory the NPCI-8280-4E1/T1/J1 is optimized to meet the performance and memory requirements of state-of-the art communication protocols and applications.

Firmware

Communication protocols like SS7, ISDN, etc., are available as binary firmware images as well as operating system independent source code licenses. By default these firmware protocols run on the well proven N.A.T. real-time kernel OK-1, which is optionally available in source code. Also available for the NPCI-8280-4E1/T1/J1 are BSPs for other operating systems such as VxWorks or Linux.

Enhanced software development and effective debugging is supported by the onboard BDM/JTAG interface.

N.A.T. offers standard protocols and customized firmware development.

CPU
Motorola MPC8280 "PowerQuicc II" at 333MHz or 450 MHz

PCI Interface and Compliance
MPC8280 on-chip PCI bridge, 32bit /33MHz, PCI Rev. 2.2, 3.3V signalling, 5V tolerant

H.100 Bus
OKI CT812, ECTF H.100 on male header connectors S5 and S4

DRAM
up to 256MB SDRAM (PC-100, 64 bit) installed in a SODIMM slot

Flash PROM
16 or 32MB Flash PROM (32bit)

Line Interface
four primary rate E1/T1/J1 lines (I.431) on standard RJ45 connectors at front panel supplied by Infineon PEB22554 "QuadFalc"

Serial I/O
RS232 compatible on shared connector with BDM/JTAG interface

Networking
100BaseT Ethernet (IEEE 802.3) on standard RJ45 connector at rear edge of card

Operating System Support and Firmware
OK-1, VxWorks, LINUXSS7, ISDN and others

Power Consumption
3.3V 0.85A typ. , 5V 0.55A typ.

Environmental
Temperature (operating):
0ºC to +60ºC with forced air cooling
Temperature (storage):
-40ºC to +85ºC
Relative Humidity:
10% to 90% at +55ºC
(non-condensing)