

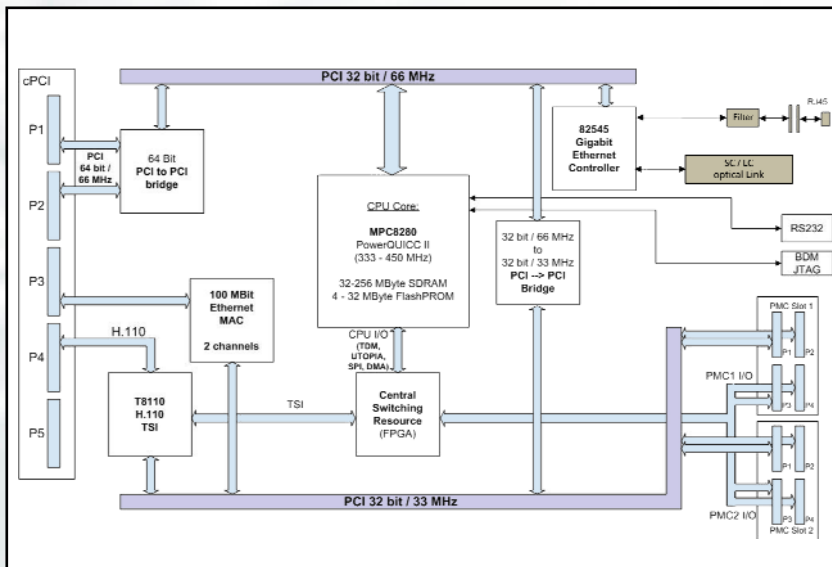
# General Purpose cPCI Board



## NVTP1001

The NVTP1001 is a high-performance hot swap 6U cPCI board, based on the Motorola versatile MPC8265/8280 "PowerQuicc II" processor. It provides 2 PMC slots for use with any PMC modules as well as a Gigabit Ethernet port using either a standard RJ45 1000BaseT connector or an optical fibre connector on the front panel. With its unique and open design the NVTP1001 enables the customer to interconnect between any type of network physics using a one slot single board computer. The on-board central switching resource (a programmable Routing Pool) optimizes the NVTP1001 for use in any sophisticated telecom and networking applications such as SS7, ISDN, ATM or VoP or interconnecting environments. The NVTP1001 supports both the H.110 (PICMG 2.5) and the IP-Backplane (PICMG 2.16) standards.

# Technical Data



## Overview

The NVTP1001 is an intelligent carrier for PCI Mezzanine Cards (PMC) in 6U cPCI (compact PCI) form-factor based on the Motorola MPC8280 "PowerQuicc II" CPU. It is targeted at all kinds of telecommunications or networking applications with a need for a powerful and versatile interconnection platform such as SS7, ISDN, ATM, VoP or any combination of protocols. The NVTP1001 enables full use of any functionality provided by internal interfaces and the microcode of the Motorola MPC8280 "PowerQuicc II" (i.e. IMA, ATM etc.) by utilizing an onboard central switching resource. This unique and open design enables the customer to flexibly interconnect between any type of network physics on a one slot single board computer in a generic and easy way.

## Hardware

The NVTP1001 is a 64bit/66MHz PCI rev. 2.2 compatible hot swap (PICMG 2.12) cPCI carrier board for any kind of PMC module. It also provides the functions required for operation in cPCI system slot position 1 and complies to PICMG 2.5 (H.110) and PICMG 2.16 (IP-Backplane).

It offers two PCI Rev. 2.2, P1386.1 / Draft 2.4a compatible 32bit/33MHz PMC extension slots for use with any standard PMC module. The I/O connector (P14) of each of the PMC sites is individually connected to the onboard Routing Pool. This Routing Pool implements the central switching capability of the NVTP1001 in a large onboard programmable FPGA performing any signal routing between CPU I/O, H.110, PMC I/O and cPCI I/O. By using the FPGA the type of I/O interface to the PMC slots can easily be customized to be SPIbus, UTOPIA2, SCBus, TDM or any other.

As well as the possibility of using any PMC module on any of the two onboard PMC sites, the NVTP1001 offers a 1000 Megabit/sec (Gigabit) Ethernet interface. The Gigabit Ethernet is available at the front panel, either via an RJ45 1000BaseT connector or by an optical fibre connector.

For general purpose use, the NVTP1001 offers two RS232 serial interfaces on the front panel as well as a real time clock.

Equipped with up to 256MB SDRAM, 512kB separate onboard programmable boot Flash-Memory and either 16 or 32MB onboard programmable Flash-Memory the NVTP1001 is optimized to meet the performance and memory requirements of state-of-the art communication protocols and 3G wireless and broadband applications as well as the requirements of next generation networks.

Software development and debugging is supported by the onboard BDM/JTAG interface.

## Firmware

As well as a large variety of FPGA codes for the Routing Pool, communication protocols like TCP/IP, SS7, ISDN, etc., are available as binary firmware images. 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 NVTP1001 are BSPs for other operating systems such as VxWorks.

N.A.T. offers standard protocol adaptations for the NVTP1001 as well as customized firmware development.

## CPU

Motorola PowerQuicc II :  
MPC8280 at 333 MHz or 450 MHz  
MPC8265 at 300 MHz

## PCI Interface and Compliance

cPCI: Intel 21555, 64 bit/66MHz,  
hot swappable, PCI Rev. 2.2  
PMC: PLX PCI 6150, 32bit/33MHz,  
PCI Rev. 2.2, P1386.1/Draft 2.4a

## H.110 Bus (PICMG 2.5)

Agere T8110 H.110 controller, on cPCI J4 connector

## IP-Backplane (PICMG 2.16)

AMD AM79C973 10/100BaseT Ethernet controller, on cPCI J3 connector

## SDRAM

32-256MB SDRAM (PC-100, 64 bit)  
installed in a SODIMM slot

## Flash PROM

16/32MB Flash PROM (16bit), separate boot Flash (512kB)

## PMC slots

Two 32bit/33MHz PCI Rev.2.2,  
P1386.1/Draft 2.4a compliant PMC slots, signals of PMC I/O connector (P14) routed to FPGA for open interconnect

## Serial I/O

Two RS232 compatible serial ports on the front panel

## Networking

Intel 82544 Gigabit Ethernet controller on standard RJ45 or optical connector on the front panel

## Routing Pool

Altera 1K100 FPGA, central switching resource

## Operating System Support and Firmware

OK-1, VxWorks, LINUX, TCP/IP, SNMP, SS7, ISDN and others

## Power Consumption

2A at 3.3V and 1A at 5V (prel.)

## Environmental

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

N.A.T.

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