

MEGAFRAME/IBM

Transputer high performance put into the IBM-PC

Any MEGAFRAME transputer module plugged into
IBM-PC using versatile adapter module

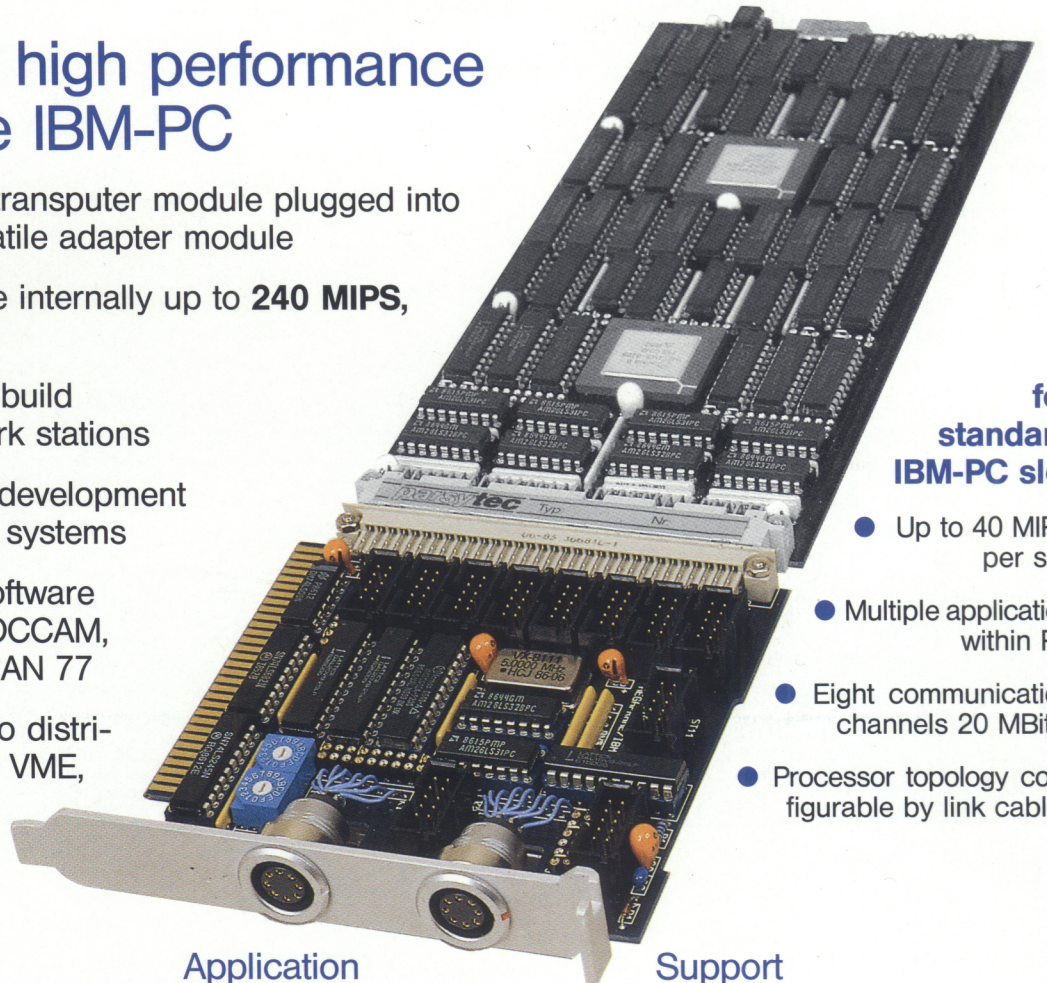
IBM-PC expandable internally up to **240 MIPS**,
externally unlimited

Easy integration to build
dedicated OEM work stations

Cost effective host development
for multi transputer systems

Fast and reliable software
development with OCCAM,
C, PASCAL, FORTRAN 77

Easy integration into distri-
buted systems with VME,
IBM, SMP, ECB



for
standard
IBM-PC slot

- Up to 40 MIPS per slot
- Multiple application within PC
- Eight communication channels 20 MBit/s
- Processor topology configurable by link cables

Features

Using the MEGAFRAME/IBM adapter all the parallel processing modules of the MEGAFRAME family can be used to upgrade the IBM-PC. Simply plugging a MEGAFRAME module into an IBM-PC slot brings the power of up to four transputers to upgrade the system by up to 40 MIPS, 3 MFLOPS, 4 MByte RAM, or fast 1024 x 1024 x 8 graphic processing.

The fitting of several modules into the PC allows a high-speed data and program interchange to be effected between the processors, using fast communication channels which are not restricted by the PC bus.

This technique enables a hitherto unattainable processing performance capability and the simple, rapid integration into distributed systems. External transputer systems and Bus Bridgehead modules can be connected by link cables at speeds of 20 Mbit/s.

Application

The MEGAFRAME/IBM user has now the transputer concept embodied into PC applications in evaluation, software development and OEM systems development:

The MEGAFRAME module itself is free for use with other systems after the initial, cost-effective, transputer evaluation using the IBM-PC has been completed.

MEGAFRAME modules used in several PC's for software development may be combined provisionally within a MEGAFRAME system unit for the purposes of peak load testing thus avoiding the need of stocking transputer modules separately for both applications.

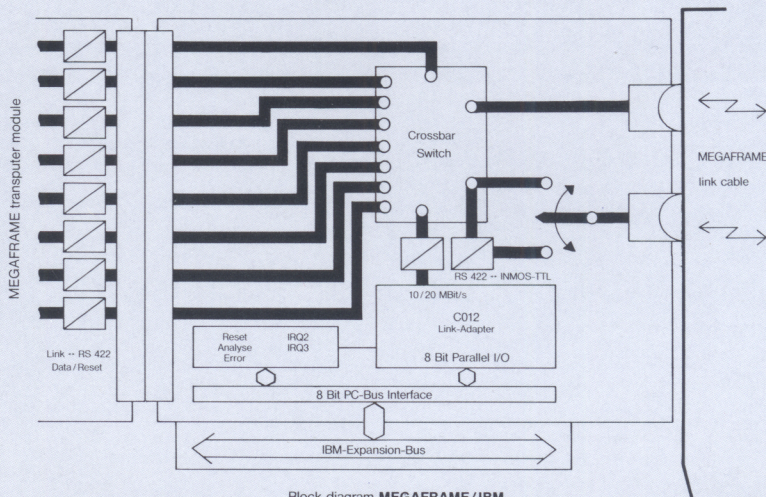
The OEM developer has the opportunity to configure high-performance, user-specific, IBM workstations with a transputer module system with which he can also integrate VME-, SMP-, and ECB-type peripherals.

Support

The MEGAFRAME/IBM-adapter is complemented by a variety of components and development systems from the MEGAFRAME family. The power of the hardware is complemented by the parallel processing language OCCAM and powerful configuration software for large numbers of processors. Compilers for C, PASCAL and FORTRAN 77 can also be used. High speed communication between an unlimited number of processors, is uniformly but simply supported in both hardware and software. Its integration into existing applications is easily enabled by the use of standard peripherals and sub-systems from VME, IBM, SMP, and ECB. To guarantee later expandability of a system, the communication channels of all MEGAFRAME components are both hardware and software compatible and may also be used with other transputer based products.

Technical description

The MEGAFRAME/IBM adapter may be plugged into an IBM-PC expansion slot thus serving as an interface between the PC bus and a MEGAFRAME transputer module. This connection can be carried out at 20 MBit/s, over a standard link cable of up to 10 metres long, to an external transputer system. A simple interconnect mechanism, however, will also enable the transputer module to be directly fitted to the adapter module, the combination can then be plugged into an IBM expansion slot. The transputer module is supplied from the IBM-PC power supply via the adapter. As far as the software is concerned this adaption works transparently within the PC-DOS development system. The MEGAFRAME adapter employs an INMOS C012 chip, the 8 bit parallel interface of which is connected to the IBM-PC I/O bus. The data is bi-directionally converted to the transputer link format using the MEGAFRAME RS422 scheme. It also contains an I/O register which can be addressed by the IBM bus and controls the reset/analyse functions of the connected transputer. The data and acknowledge signals arriving from the transputer via the link may also be jumper-selected to produce an IRQ2 interrupt signal. The transputer also may generate an IRQ3 interrupt signal by sending a reset via the link. The adapter is fully decoded in the I/O address range and prepared to accommodate any IBM-PC timing. The default setting of the I/O addresses guarantees full software compatibility with the INMOS B004 board. The basic addresses are switch selectable in 64 Byte increments and allow several adapters to be easily operated within the PC. The standardized 8 bit I/O slot plug is compatible to the 16 bit I/O bus of the IBM-AT.



Block diagram MEGAFRAME/IBM

To interface the PC to the transputer module the MEGAFRAME/IBM adapter has 11 link connections each on a 10 pole connector plug. These RS422 connections with their integral reset/analyse function can either be linked to each other or to other adapter modules used within the PC. One of the connections is taken via the INMOS C012 chip to the PC bus. Two connectors are provided on the adapter module back panel (at the rear of the PC) which enable a standard link cable connection to external systems located up to 10 metres away. One of these connections allows the conversion of the MEGAFRAME-RS422 signal to the INMOS-TTL scheme by means of jumpers. The remaining eight connections come from the 96 pole VG

female connector, into which a MEGAFRAME transputer module, with its eight external links, may be plugged. The development software runs on the connected transputer whilst a PC-DOS server provides access to the mass storage, keyboard and monitor, all transparent to the user. Using the appropriate driver software, it is also possible for a PC-DOS program to load code and data for extensive calculating work into the PC transputer. The results may then be retrieved for further processing in the PC-DOS program. A further possibility is the direct fast connection of a PC-DOS program with independent systems running on VME, SMP, and ECB, via the adapter and the appropriate interfacing bus bridgehead modules of the MEGAFRAME family.

Experience through pioneering

PARSYTEC makes new information technology highly usable for industrial applications. Their aim is the recognition of long-term trends as well as a consequent involvement in usable practical results.

High technology is useless in absence of the maturity that comes with experience. Consequently, PARSYTEC are engaged in the development of prototypes and preproduction runs even when an emerging technology has not, as yet, achieved universal recognition. This ensures that the user gets a mature product right from the start and help him in keeping his own competitive edge.

PARSYTEC has, with its MEGAFRAME series, deliberately set out to be the first firm in the world to introduce industrial transputer technology. This system has, in the meantime, been proved in practical application and continues to be further developed.

Competitive edge through system technology

The concept of the MEGAFRAME's bus-free technology offers the sort of system performance and flexibility which is beyond the reach of conventional techniques.

Technical performance, however, can only be useful in the context of a system capability and herein lies the supreme advantage of the MEGAFRAME series. A series of carefully graded processing modules guarantees an unlimited extendability. Bus bridgehead modules are provided for the integration of VME, IBM, SMP, and ECB standard peripherals. Mass memories and high-grade graphics are supported by a further product line.

A thorough and well-rounded completeness together with reliability and availability gives the system developer assurance. He is able to progress from existing systems and know-how and to react flexibly to any unexpected demands.

Confidence through cooperation

New technology demands a well considered involvement together with a reliable partner. PARSYTEC ensures customer success not just with its products but also with copious support and know-how.

If you have any queries about our Parallel Processing, or you wish to be regularly informed by our representative, just give us a call or drop us a line.

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