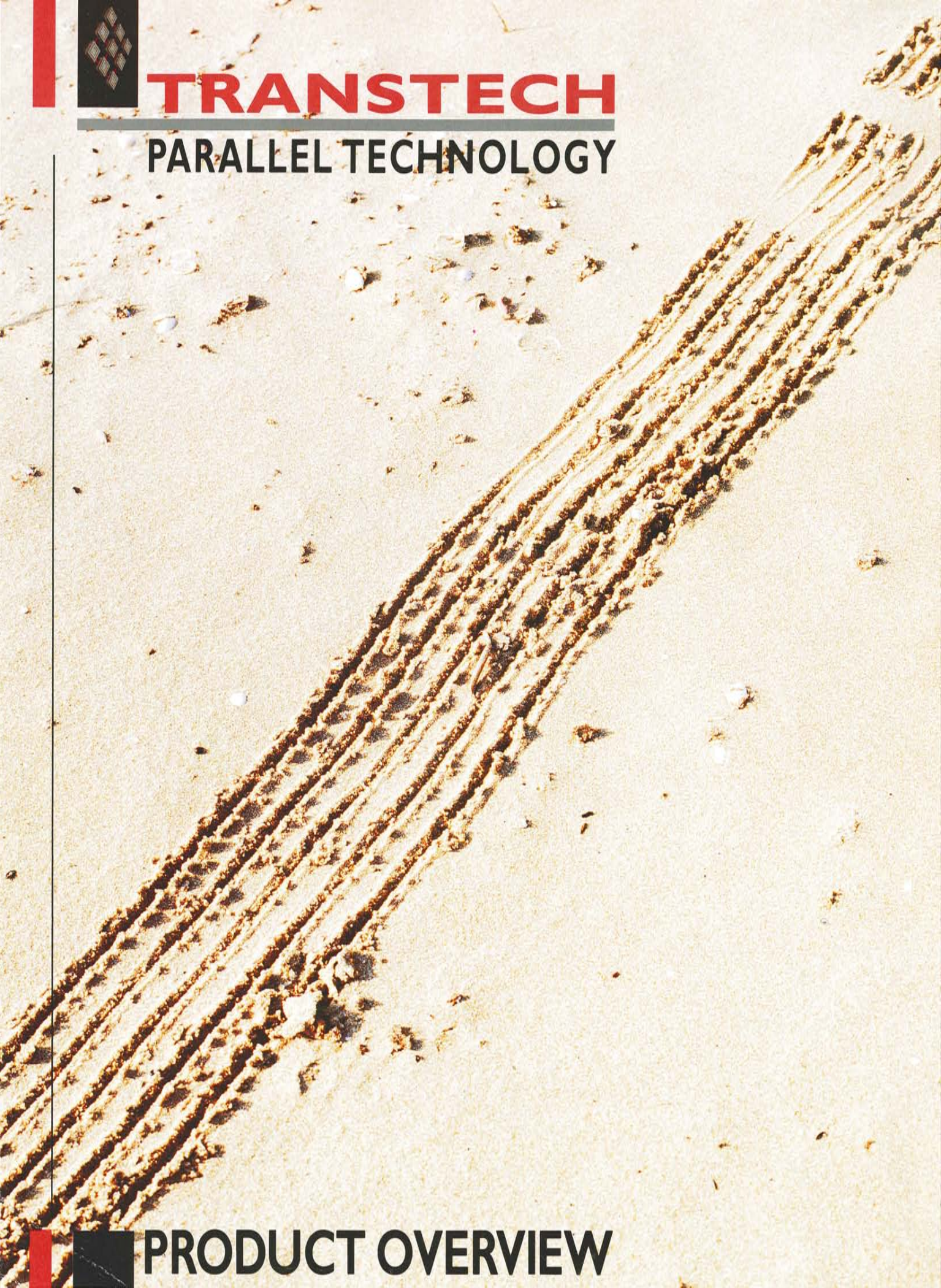
TRANSTECH

PARALLEL TECHNOLOGY



PRODUCT OVERVIEW

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Transtech:- The Company

Transtech Parallel Systems is one of today's leading producers of parallel systems. From its beginning in 1986 Transtech quickly established market domination in transputer sub-systems. In 1987 the decision was taken to enter the systems design and integration business, embracing the open systems philosophy. The result is Transtech's leading position in parallel processing systems, bringing super computing power to the desk top.

With established operations in the USA and the UK, Transtech has installed thousands of systems world-wide and is a leading member of the parallel processing community. This is allied to the committed investment in research and development, continually creating products which expand the application of parallel processing.

Transtech's Parallel Systems

The Transtech range of parallel processing products is ideal for parallel systems integrators. Based on the industry standard TRAM (TRAnsputer Module) format, all of Transtech's processing and application specific modules can easily be integrated into the host computer by use of the appropriate module motherboard or interface.

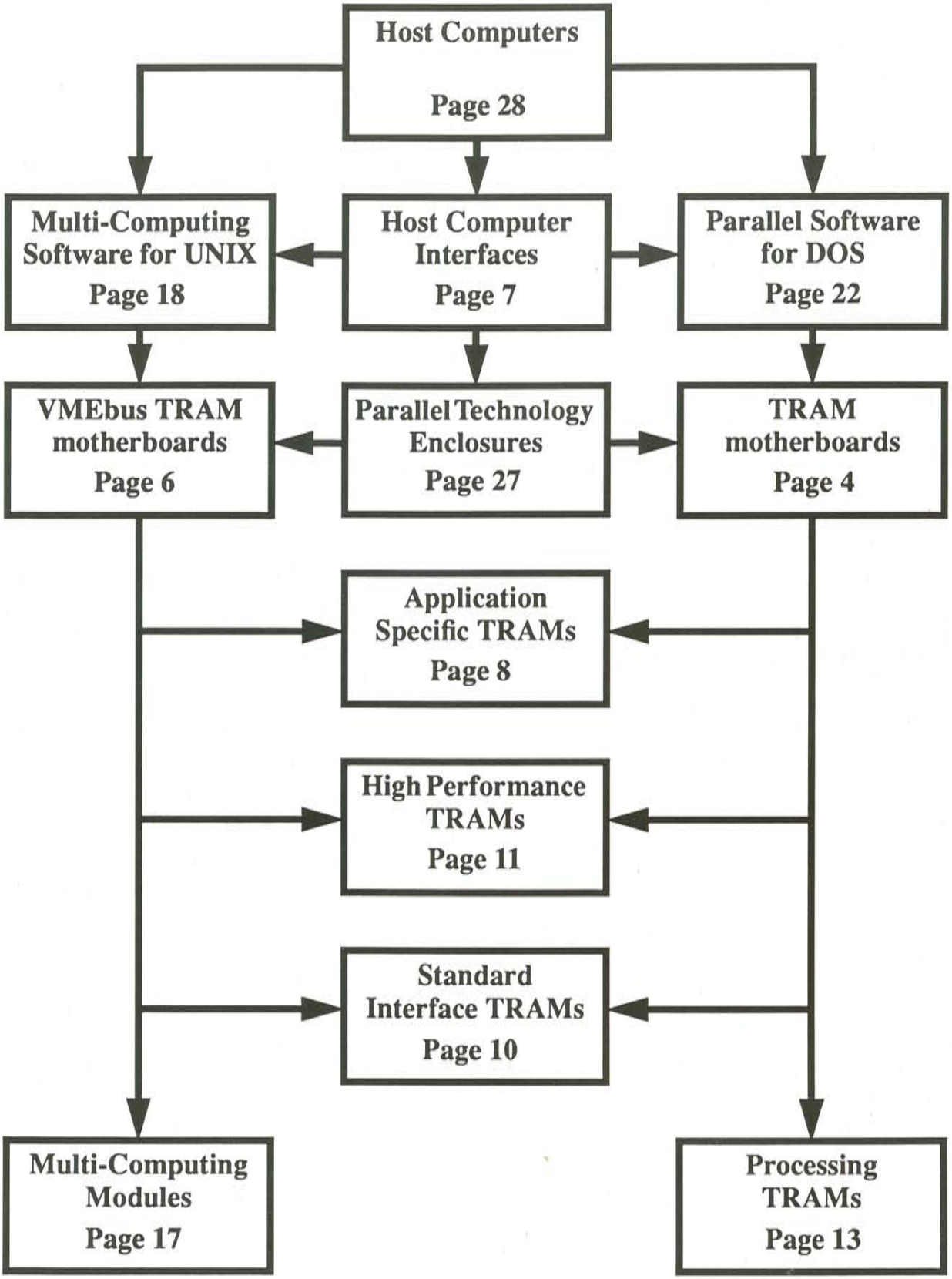
Transtech's commitment to open systems enables support for:-

Sun 6U and 9U VMEbus
Silicon Graphics 6U and 9U VMEbus
Industry standard 6U VMEbus
IBM PC XT and AT bus or compatibles
IBM PS/2 with Micro-Channel Adaptor
Sun SBus

Processing modules based on Intel i860s and Transputers with 32 K to 16 Megabytes of RAM can easily be connected to the standard motherboards. Transtech also has a range of application specific modules including graphics display and image capture, a SCSI interface for fast on-line mass storage, as well as special modules for converting transputer links to industry standard communication ports such as RS232, RS422, Centronics and IEEE.

Larger parallel processing systems can be engineered using the range of Parallel Technology Enclosures which can house from 1 up to 640 processors each. More Parallel Technology Enclosures can be connected in parallel.

Transtech's commitment to open systems ensures that a wide range of third party software products will run on Transtech equipment. Transtech have developed and support a processor independent parallel operating system called GENESYS, (developed from the Trollius operating system) the first clean interface between UNIX and transputers. Transtech run GENESYS on Transputers and i860's as well as SPARC's and Motorola MC68020's. Standard programming tools including compilers and symbolic debuggers are also available for GENESYS.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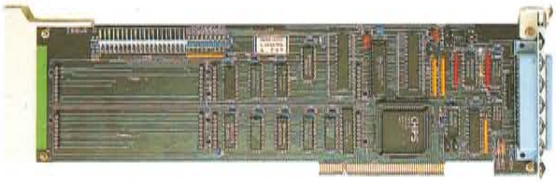
PS/2

TMB02

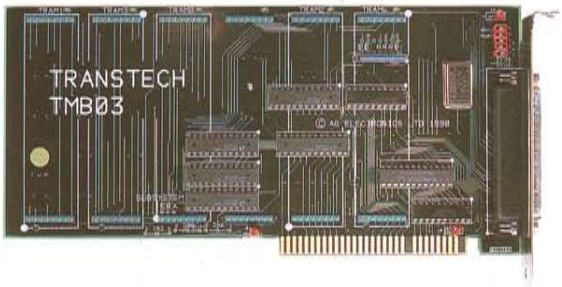


FEATURES
PS/2 add-in board
MCA interface
4 Transputer Module (TRAM) slots
Compatible with Transtech TRAMs

The Transtech TMB02 provides the interface between the IBM PS/2 range of PCs with an MCA port and the powerful transputer systems. The TMB02 can accept up to 4 size 1 TRAMs or 2 size 2 TRAMs, or can be used simply as a link adaptor interface to an external stand alone transputer system

XT/AT

TMB03

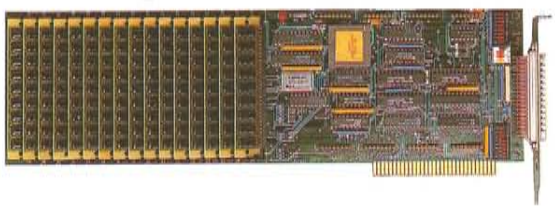


FEATURES
Low cost XT/AT add-in board
DMA/IRQ PC interface
6 (5 active) Transputer Module (TRAM) slots
Compatible with Transtech TRAMs

The Transtech TMB03 is a low cost interface board for users wishing to start to evaluate transputer systems attached to PCs. It can accommodate up to 5 active TRAMs, though it actually has 6 TRAM slots with one being inactive to allow different size combinations of TRAMs to be fitted. It can also be used as a simple link adaptor interface between the PC and a stand alone transputer system.

XT/AT

TMB04



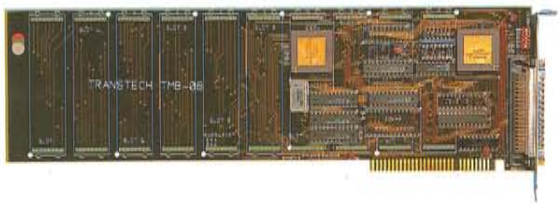
FEATURES
IMST800 or IMST425 transputer
1 to 16 Megabytes of dynamic RAM with zero wait state option
20, 25 or 30 Mhz transputer speed options
DMA/IRQ PC interface
4 Transputer Module (TRAM) slots

The TMB04 is the most flexible board in the Transtech range providing the user with a solution that can be a single transputer add-in board for the PC with a modest amount of RAM, that can be easily expanded to have more RAM simply by adding industry standard memory modules or by adding more processors in the form of TRAMs. When the TMB04's 4 TRAM slots are full it can be simply linked to other compatible transputer boards.

TRAM Motherboards

XT/AT

TMB08



FEATURES
XT/AT add-in board
10 Transputer Module (TRAM) slots
IMST222 transputer
IMSC004 programmable link crossbar switch
Supplied with Network Configuration Software (NCS)

The Transtech TMB08 is the standard board for users wishing to build small to medium size transputer arrays housed in a PC chassis. The TMB08 has 10 slots for TRAMs with links 1 and 2 of each slot arranged in a pipeline. The remaining links 0 and 3 of each slot can be taken to the IMSC004 link crossbar switch which is programmable allowing users to easily build different configurations of transputer array with the Network Configuration Software supplied as standard with the board.

AT 16 bit interface

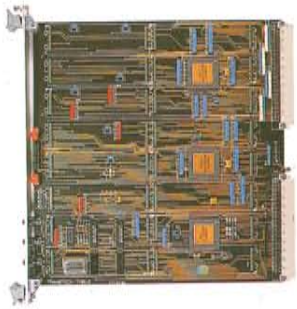
TMB16

FEATURES
AT add-in board with 16-bit interface
10 Transputer Module (TRAM) slots
IMST222 transputer
IMSC004 programmable link crossbar switch
Supplied with Network Configuration Software (NCS)

The Transtech TMB16 is a superset of the TMB08 combining the flexibility of the TMB08 with a high speed 16-bit interface between the PC bus and the transputer system. The IMST222 transputer has its external memory interface directly mapped onto the PC bus, which when combined the TMB16 device driver removes the need for slow polling of a link adaptor. The TMB16 allows data to be transferred from the PC at rates in excess of 1 Megabyte/sec depending on the speed of the PC bus.

Double Eurocard

TMB12



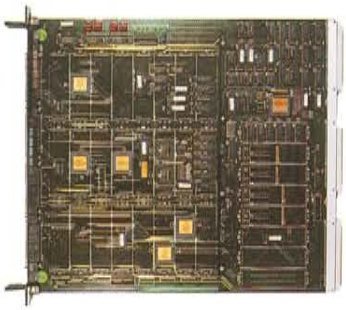
FEATURES
16 Transputer Module (TRAM) slots
IMST222 transputer
2 IMSC004 programmable link crossbar switches
Supplied with Network Configuration Software (NCS)
Double Extended Eurocard format
Compatible with Transtech FCC compliant TRANSRACK10

The TMB12 is a cost effective Motherboard used for building larger transputer arrays. It can accommodate up to 16 TRAMs arranged in a link 1 to link 2 pipeline (as the TMB08) with the remaining links 0 and 3 capable of being electrically reconfigured by the IMSC004 crossbar switches using the Network Configuration Software (NCS).

VMEbus TRAM Motherboards

9U VME (4 user)

MCP1000

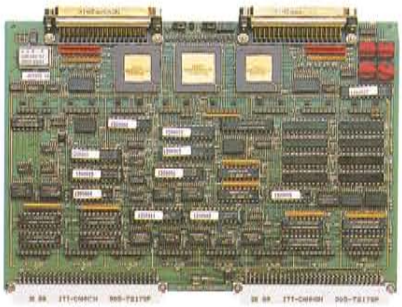


FEATURES
Dual-ported high performance VME interface
Support for up to 4 users per board
Driver support for Sun and Silicon Graphics workstations
32 Transputer Module (TRAM) slots
Software reconfigurability of link topology

The MCP1000 is used to gain access to large multi-user parallel processing arrays provided as a resource on a network of Sun or Silicon Graphics Workstations. Multiple boards can be added to a single workstation with access from anywhere on the network. More boards can be added to other workstations in the network.

6U VME (2 user)

MCP500

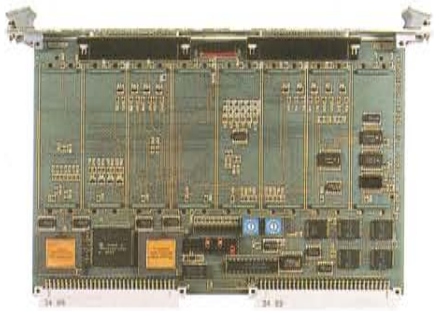


FEATURES
Dual-ported high performance VME interface
Support for up to 2 users
Driver support for Sun and Silicon Graphics workstations
8 Transputer Module (TRAM) slots
Total software reconfigurability of link topology

The MCP500 provides the interface between Sun or Silicon Graphics Workstations and the power of parallel processing. It can be fully integrated into either SunOS on Sun3 and Sun4 workstations or into IRIX for Silicon Graphics. It can provide a gateway to the resource from anywhere on the network.

6U VME Slave

TMB14



FEATURES
6U VMEbus interface board
8 Transputer Module (TRAM) slots
IMST222 transputer
2 IMSC004 programmable link crossbar switches
Supplied with Network Configuration Software (NCS)

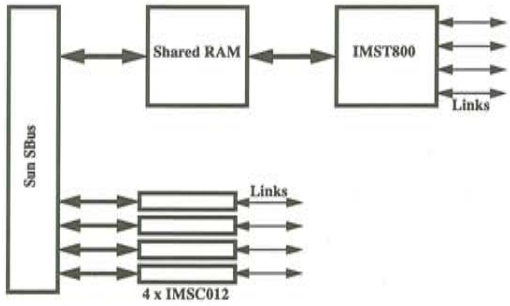
The Transtech TMB14 is compatible with the VMEbus Specification REV. C. 2. It is a standard double height (6U) card with 8 TRAM slots. It allows arrays of processors to be configured using the IMSC004 link crossbar switches. Up to 24 links can be taken off the board via the P2 connector and the two standard 37 way D-types on the front; hence it can be used as a component of a much larger parallel computing system.

Sun SBus to Link

MCI400

FEATURES
Single slot SBus card
IMST800 transputer with four links to rear panel
FIFO buffers between SBus and transputer
DVMA master of SBus for fast transfers
Supports 4 IMSC012 link adaptors with DMA

The MCI400 provides a multi-user interface to a parallel computing system from the Sun SPARCstation's SBus. It has four links available from the dedicated interface transputer as well as four high performance DMA driven link adaptor interfaces. It allows direct access to transputers from the SBus.

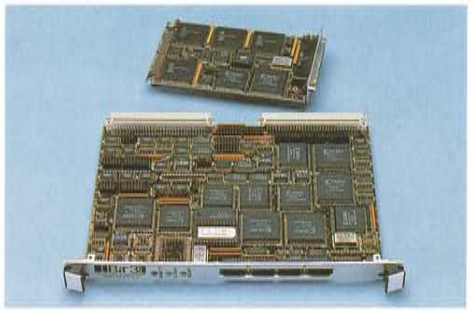


SBus to VMEbus

MCI100

FEATURES
SBus to VMEbus converter
Includes SBus board and standard 6U VMEbus board
Transparent to the user
Allows MCP500 and MCP1000 to be added to SBus.

The MCI100 SBus to VMEbus converter allows the MCP500 and MCP1000 Multi-Computing Platforms to be interfaced to the SBus of Sun SPARCstations, providing the users with access to the sophisticated UNIX based development tools associated with the MCP500 and 1000 without the need to purchase the more expensive workstations with spare VMEbus slots. The MCI100 is compatible with the range of Parallel Technology Enclosures which provide passive VMEbus backplanes.



Application Specific TRAMs

i860 Vector Processor

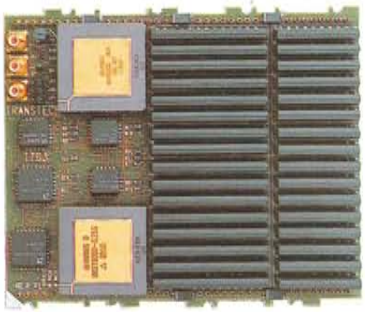
TTM100

FEATURES
Intel i860 40Mhz 64-bit microprocessor
IMST800 floating point transputer
5 to 20 Megabytes of fast DRAM
Software drivers and maths library support
Industry standard size 6 TRAM

The TTM100 integrates the i860 64-bit microprocessor into parallel processing arrays with the minimum of user effort. The TTM100 can be provided with ANSI standard FORTRAN 77 and C compilers for use under UNIX or DOS environments. Transtech also supply a MathAdvantage library of over 260 routines which can be implemented on the i860 and called from a program running on the transputer in occam, C or FORTRAN.

High Res. Graphics

TTG3

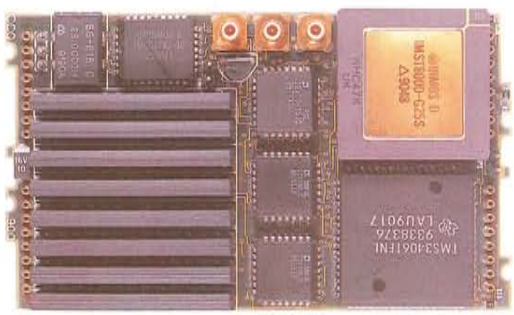


FEATURES
IMST800 transputer
IMSG300 Colour Video Controller
2 or 8 Megabytes of fast DRAM
2 Megabytes of dual ported Video RAM
Supports up to 1280x1024 8-bit pixels
Supplied with TTGS Graphics Server
Industry standard size 4 TRAM

The TTG3 supports resolutions up to 1280x1024 8-bit pixels, or two screens of 1024x1024 8-bit pixels for double buffered animation, displaying 256 colours from a palette of 16.7 million possible colours. The TTG3 is supported by the TTGS graphics server which provides key graphics functions, callable from the programs running on the transputer. The TTG3 also supports X-windows when used with the Helios operating system.

Graphics Controller

TTG1



FEATURES
IMST800 transputer
1 Megabyte of video RAM
Texas 34061 CRTC
Supports up to 512x512 8-bit pixels
Supplied with TTGS Graphics Server
Industry standard size 2 TRAM

The TTG1 is a low cost solution to providing real time transputer graphics. Its 1 Megabytes of Video RAM is usually configured as 512K of program memory and two banks of 256K of screen memory giving two screens of 512x512 8-bit pixels for double buffered animation. The TTG1 is supported by the TTGS graphics server which provides key graphics functions, callable from the programs running on the transputer.

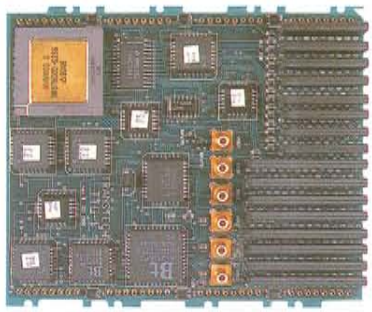
Application Specific TRAMs

Framegrabber

TTG-F

FEATURES
IMST800 transputer
1 or 4 Megabytes of program memory
1 Megabyte of Video RAM
Real Time image capture (up to 18 Mega samples / sec)
Supplied with Image Processing library
Industry standard size 4 TRAM

The TTG-F is a framegrabber which enables a direct input to parallel arrays for many image processing applications. The TTG-F can capture up to 1024x1024 8-bit pixel images and is programmable for smaller images. The TTG-F can also display the live digitised video. Supplied as standard with the TTG-F are primitives for image capture and an object code version of NEL's IPLIB image processing library which is callable from 3L's parallel C. Source code of IPLIB is available as a separate product.

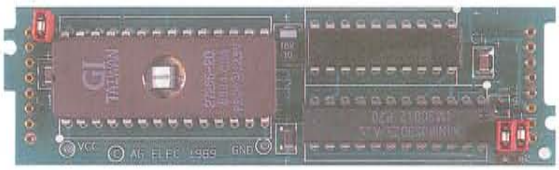


Bootstrap TRAM

TTM12

FEATURES
64 KBytes ROM
IMSC012 link adaptor
Allows stand alone systems to be booted
Industry standard size 1 TRAM

The TTM12 is a simple TRAM with up to 64 KBytes of EPROM. Using transputer development tools EPROMs can be programmed with transputer boot code. The EPROM can then be put on the TTM12, which will download the code out of either link 1 or link 2 of the TRAM when it is reset, hence booting which ever other TRAM it is connected to. This allows parallel systems to be booted without the need for them to be connected to a development system.

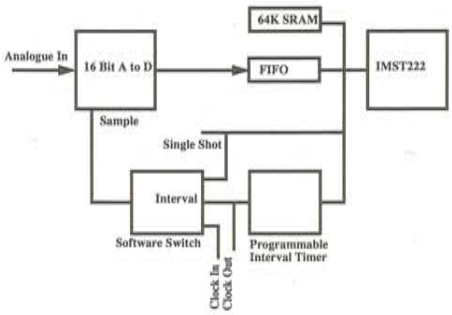


A to D Converter

TTM20

FEATURES
IMST225 16-bit transputer
16-bit A to D converter
up to 200KHz sampling
FIFO buffer with T2 event generated on half full
Industry standard size 4 TRAM

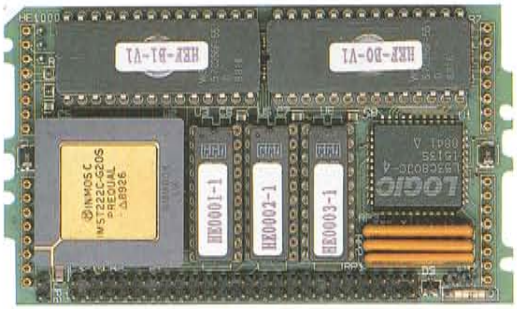
The TTM20 provides a high performance Analogue to Digital converter input for transputer based parallel computing systems. The input voltage range is -3 to +3 volts, while the input sampling rate is programmable between 1 Hz and 200KHz with resolution timing of 100ns. The TTM20 can be used in single shot mode or continuous sampling mode.



Standard Interface TRAMs

SCSI Controller

TTM11-2

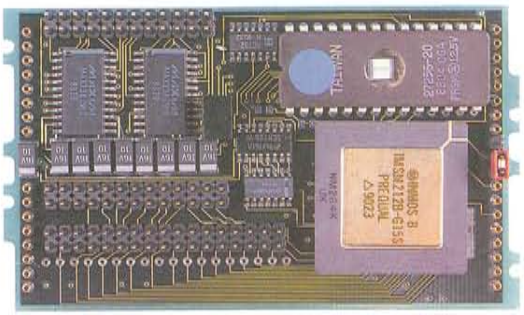


FEATURES
IMST222 transputer
64 KBytes of 2 cycle RAM
SCSI firmware in ROM which loads at boot time
Industry standard size 2 TRAM

The TTM11-2 acts as a SCSI interface between the transputer world and the SCSI bus. It enables SCSI disks and other peripherals to be integrated into parallel processing systems. The ROM contains firmware for implementation of the SCSI protocol. The TTM11-2 is compatible with the Helios filing system (HFS).

Multi-I/O Controller

TTM13

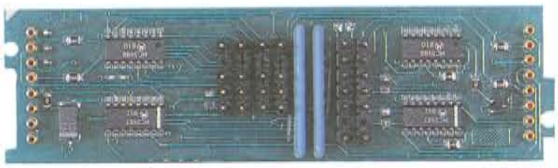


FEATURES
RS232, RS422, Parallel (Centronics) or GPIB interfaces
IMSM212 peripheral controller transputer
Industry standard size 2 TRAM

The TTM13 is a device for providing transputer link to standard interface conversion. It can support either RS232 or RS422 serial communication (specified at time of order), Centronics Parallel and GPIB interfaces. The type of interface is selected by a simple software driver which runs on the IMSM212 peripheral controller.

Differential Link

TTM415



FEATURES
Link to RS422 differential driver
Supports 4 links and system services
10 or 20 Mbits/sec operation
Industry standard size 1 TRAM

The TTM415 is a low cost TRAM that makes it possible for transputer links to be connected together over longer than distances than the standard link connection would allow. At 10 Mbits/sec distances up to 100m can be connected together, while at 20 Mbits/sec links can be reliably connected over 10m.

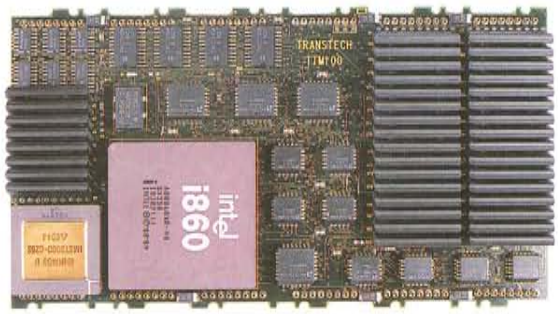
High Performance Processing TRAMs

i860 Vector Processor

TTM100

FEATURES
Intel i860 40Mhz 64-bit microprocessor
IMST800 floating point transputer
5 to 20 Megabytes of fast DRAM
Software drivers and maths library support
Industry standard size 6 TRAM

The TTM100 integrates the i860 64-bit microprocessor into parallel processing arrays with the minimum of user effort. The TTM100 can be provided with ANSI standard FORTRAN 77 and C compilers for use under UNIX or DOS environments. Transtech also supply a MathAdvantage library of over 260 routines which can be implemented on the i860 and called from a program running on the transputer in occam, C or FORTRAN.

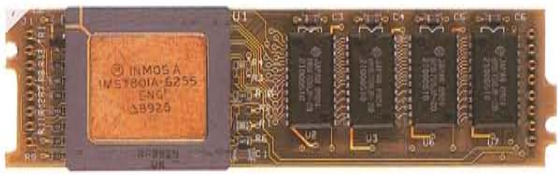


256 KBytes RAM

TTM30

FEATURES
IMST801 25 MHz transputer
256 KBytes of 2 cycle SRAM
Industry standard size 1 TRAM

The TTM30 uses the IMST801 transputer running at 25 MHz. The IMST801 has a non-multiplexed memory interface which enables it to access external RAM in a minimum of 2 processor cycles (IMST800 transputers take 3 cycles). This high speed memory interface combined with on chip floating point arithmetic make this TRAM one of the fastest transputer modules currently available.



1 Megabyte RAM

TTM31

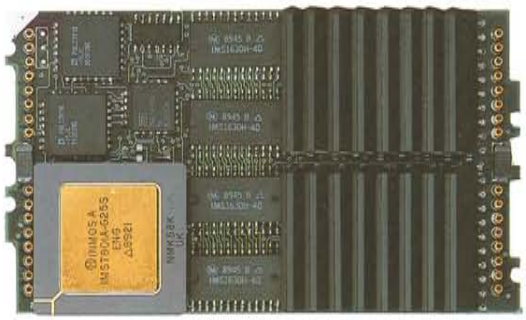
FEATURES
IMST801 25 MHz transputer
1 MByte of 2 cycle SRAM
Industry standard size 1 TRAM

The TTM31 uses the IMST801 transputer running at 25 MHz. The IMST801 has a non-multiplexed memory interface which enables it to access external RAM in a minimum of 2 processor cycles (IMST800 transputers take 3 cycles). This high speed memory interface combined with on chip floating point arithmetic make this TRAM one of the fastest transputer modules currently available.

High Performance Processing TRAMs

2 Megabytes RAM

TTM32

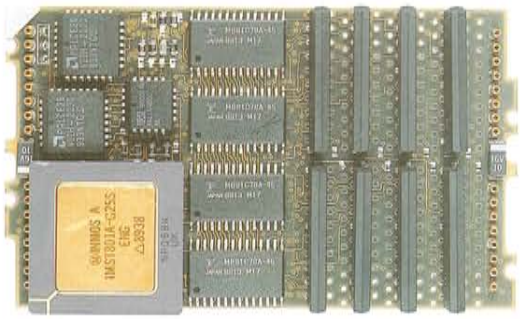


FEATURES
IMST801 transputer
2 MBytes of fast 2 cycle page mode DRAM
32 KBytes of 2 cycle SRAM
Full sub-system control
Industry standard size 2 TRAM

The TTM32 combines the IMST801 transputer running at 25 MHz with a sophisticated page control mechanism and standard DRAM to provide a high performance, cost effective TRAM. The TTM32 obtains its fast 2 cycle access to the DRAM by using the page mode facility. Page breaks are accessed in 4 cycles. For programs which often access contiguous blocks of memory this provides significant speed increases.

4 Megabytes RAM

TTM34

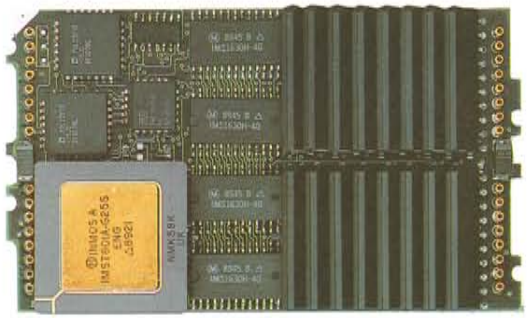


FEATURES
IMST801 transputer
4 MBytes 2 cycle page mode DRAM (Upgradable to 8MB)
32 KBytes of 2 cycle SRAM
Full sub-system control
Industry standard size 2 TRAM

The TTM34 combines the IMST801 transputer running at 25 MHz with a sophisticated page control mechanism and standard DRAM to provide a high performance, cost effective TRAM. The TTM34 obtains its fast 2 cycle access to the DRAM by using the page mode facility. Page breaks are accessed in 4 cycles. For programs which often access contiguous blocks of memory this provides significant speed increases.

8 Megabytes RAM

TTM38



FEATURES
IMST801 transputer
8 MBytes of fast 2 cycle page mode DRAM
32 KBytes of 2 cycle SRAM
Full sub-system control
Industry standard size 2 TRAM

The TTM38 combines the IMST801 transputer running at 25 MHz with a sophisticated page control mechanism and standard DRAM to provide a high performance, cost effective TRAM. The TTM38 obtains its fast 2 cycle access to the DRAM by using the page mode facility. Page breaks are accessed in 4 cycles. For programs which often access contiguous blocks of memory this provides significant speed increases.

64 KBytes RAM

TTM22

FEATURES
IMST222 transputer
64 KBytes of 2 cycle SRAM
Industry standard size 1 TRAM

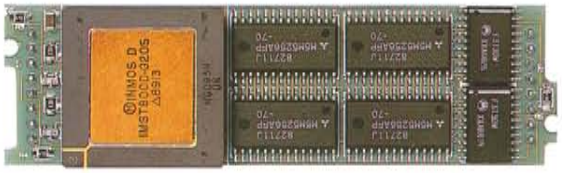
The TTM22 has an IMST222 16-bit transputer with 64 KBytes of 2 cycle Static RAM. It provides a low cost efficient solution where there is no requirement for hardware floating point arithmetic or for large amounts of program memory.

128 KBytes RAM

TTM2

FEATURES
IMST800 or IMST425 transputer
128 KBytes of 3 cycle SRAM
Industry standard size 1 TRAM

The TTM2 provides a low cost effective solution for applications where 32-bit integer or floating point arithmetic is required while there is no great need for large amounts of program memory. The TTM2 can be supplied with either an IMST800 or IMST425 transputer running at 20 MHz.



1 Megabyte RAM

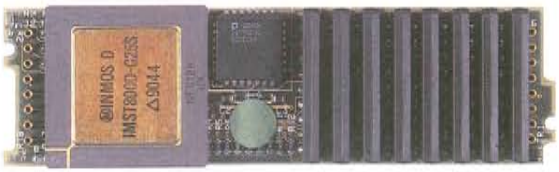
TTM3

FEATURES
IMST800 or IMST425 transputer
1 MByte of fast DRAM
Processor and memory speed options
Zero Wait state RAM option
Industry standard size 1 TRAM

The TTM3 is the most popular TRAM in the Transtech range. The capability of the IMST800 coupled to 1 MByte of program memory make it ideal as a component of a general purpose parallel processing machine. Large networks of TTM3's are often built using TMB12 TRAM motherboards housed in a TRANSRACK10. The TTM3 comes in many different speed and processor variants allowing users to match price to performance.

1 Megabyte RAM

TTM7

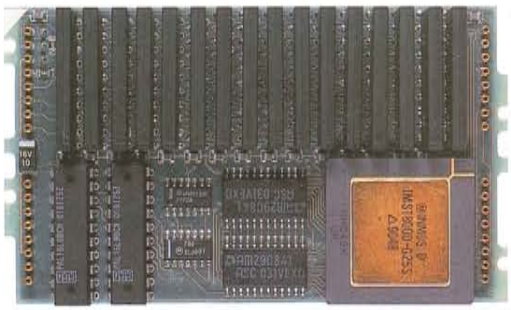


FEATURES
IMST800 or IMST425 transputer
1 MByte of fast DRAM
Processor and memory speed options
Zero Wait state RAM option
Full sub-system control
Industry standard size 1 TRAM

The TTM7 is similar to the TTM3 above, except that it also has a sub-system port which allows it to control the reset, analyse and error lines of a sub-system of processors connected to it. The TTM7 also comes in many different speed and processor variants enabling users to match price to performance.

2 Megabytes RAM

TTM6



FEATURES
IMST800 or IMST425 transputer
2 MBytes of fast DRAM
Processor and memory speed options
Zero Wait state RAM option
Full sub-system control
Industry standard size 2 TRAM

The TTM6 is the standard TRAM used in many systems where more than 1 MByte of RAM per processor is required. It is commonly used to host the occam TDS (Transputer Development System) which requires at least 2 MBytes of RAM and also a sub-system port for control of the sub-network of processors. The TTM6 is available in different speed and processor variants.

4 Megabytes RAM

TTM15

FEATURES
IMST800 or IMST425 transputer
4 MBytes of fast DRAM
Processor and memory speed options
Zero Wait state RAM option
Full sub-system control
Industry standard size 1 TRAM

The TTM15 packs 4 MBytes of RAM and a 32-bit transputer on to the smallest possible TRAM - size 1. It also has a sub-system port so it can be used to host the occam TDS. The small size and large memory make it ideal for applications with a lot of data that need to be run on a system in confined space. The TTM15 is available in different speed and processor variants.

4 Megabytes RAM

TTM16

FEATURES
IMST800 or IMST425 transputer
4 MBytes of fast DRAM
Processor and memory speed options
Zero Wait state RAM option
Industry standard size 1 TRAM

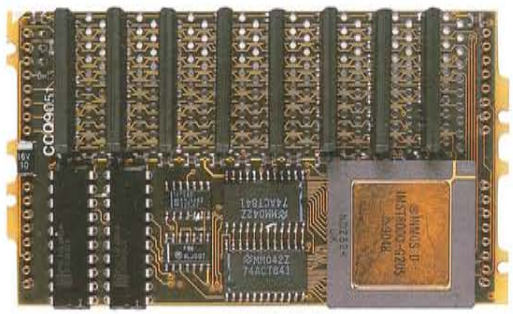
The TTM16 is similar to the TTM15 except that it does not have a sub-system port. It combines a 32-bit transputer with 4 MBytes of RAM for applications where space is precious. The TTM16 is available in different speed and processor variants.

4 Megabytes RAM

TTM17

FEATURES
IMST800 or IMST425 transputer
4 MBytes of fast DRAM
Upgradable to 8 MBytes of RAM
Processor and memory speed options
Zero Wait state RAM option
Full sub-system control
Industry standard size 2 TRAM

The TTM17 is a size 2 TRAM with a 32 bit-transputer and 4 MBytes of RAM. It is capable of being upgraded (by return to the factory) to 8 MBytes of RAM, making it suitable for developing systems where it is not known how much RAM will eventually be needed, protecting the investment in the technology but not necessarily wasting money on unneeded RAM. The TTM17 is available in many different speed and processor variants.

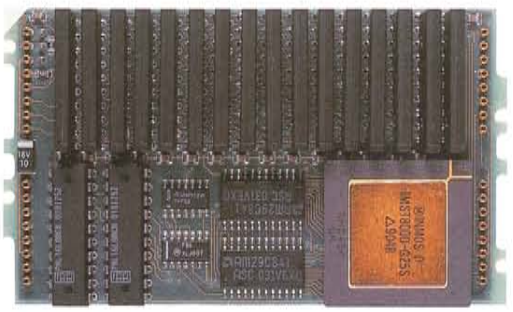


8 Megabytes RAM

TTM18

FEATURES
IMST800 or IMST425 transputer
8 MBytes of fast DRAM
Processor and memory speed options
Zero Wait state RAM option
Full sub-system control
Industry standard size 2 TRAM

The TTM18 has 8MBytes of RAM which is often used for large scientific FORTRAN problems that cannot be easily split in smaller processes. The TTM18 can be specified with different processor and memory speed options.



16 Megabytes RAM

TTM19

FEATURES
IMST800 or IMST425 transputer
16 MBytes of fast DRAM
Processor and memory speed options
Full sub-system control
Industry standard size 3 TRAM

The TTM19 is the processing TRAM with the largest amount of RAM currently available. Using 4 Mbit memory technology 16 MBytes of fast DRAM have been combined with a 32-bit transputer to provide the highest possible RAM density of any TRAM. The TTM19 is suited to special applications that require large amounts of memory that cannot be split into smaller component processes. The TTM19 comes in different speed and processor variants.

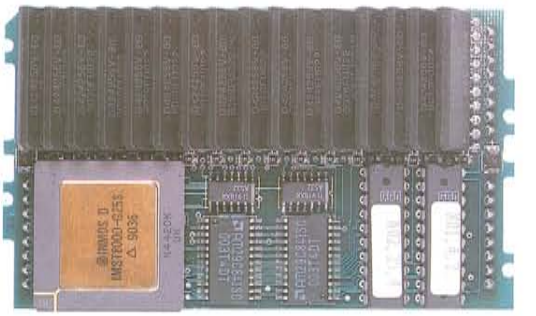
Low Profile Multi-Computing Modules

2 Megabytes RAM

MCM0102

FEATURES
IMST800 transputer
2 MBytes of fast DRAM
Processor and memory speed options
Full sub-system control
Low Profile size 2 TRAM

The MCM0102 is a special purpose Multi-Computing Module for use on the MCP500 and MCP1000 Multi-Computing Platforms. The MCM0102 ensures that the height restrictions on boards in Sun and Silicon Graphics workstations are not compromised so that the MCP500 or MCP1000 when fully loaded with modules will still fit into a single workstation slot. It is in all other respects equivalent to the TTM6.

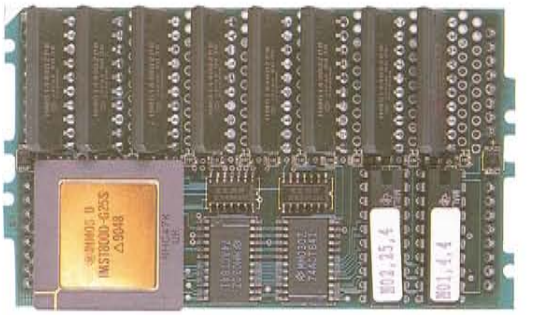


4 Megabytes RAM

MCM0104

FEATURES
IMST800 transputer
4 MBytes of fast DRAM
Upgradable to 8 MBytes of RAM
Processor and memory speed options
Full sub-system control
Low Profile size 2 TRAM

The MCM0104 is a special purpose Multi-Computing Module for use on the MCP500 and MCP1000 Multi-Computing Platforms. The MCM0104 ensures that the height restrictions on boards in Sun and Silicon Graphics workstations are not compromised so that the MCP500 or MCP1000 when fully loaded with modules will still fit into a single workstation slot. It is in all other respects equivalent to the TTM17.

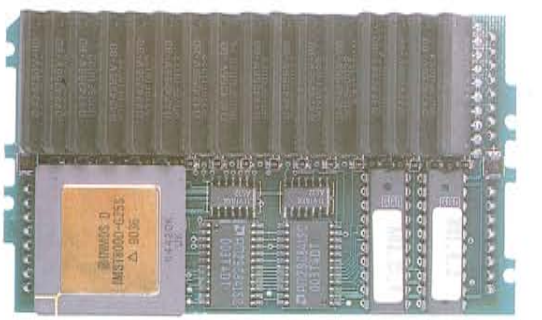


8 Megabytes RAM

MCM0108

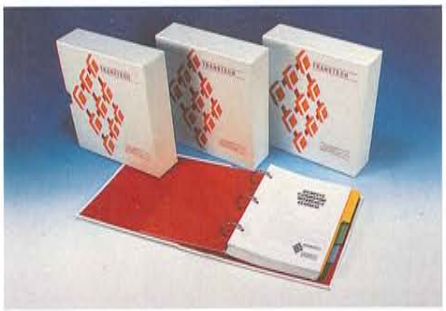
FEATURES
IMST800 transputer
8 MBytes of fast DRAM
Processor and memory speed options
Full sub-system control
Low Profile size 2 TRAM

The MCM0108 is a special purpose Multi-Computing Module for use on the MCP500 and MCP1000 Multi-Computing Platforms. The MCM0108 ensures that the height restrictions on boards in Sun and Silicon Graphics workstations are not compromised so that the MCP500 or MCP1000 when fully loaded with modules will still fit into a single workstation slot. It is in all other respects equivalent to the TTM18.



Operating System

GENESYS



FEATURES
Operating System for Parallel and Multi-Processor Machines
Supported on Sun and Silicon Graphics Workstations
Provides run time support for transputer and i860 systems

GENESYS is an operating system for parallel, distributed and multi-processing architectures. Used in conjunction with any Sun or Silicon Graphics Workstation, GENESYS supports the development of parallel applications using message passing paradigms, industry standard languages and powerful development tools.

Part Number for Transputer only version 'MCS0300'
Part Number for Transputer and i860 version 'MCS0800'

C Compiler

FEATURES
Industry standard C compilers
Supported by GENESYS operating system

Transtech provide C compilers, to be used in conjunction with the GENESYS operating system, for both the transputer and Intel i860 processors. These standard cross compilers allow the efficient porting of existing C applications code to the parallel processing resource hosted by either a Sun or Silicon Graphics Workstation.

Part Number for Transputer version 'MCS0310'
Part Number for Intel i860 version 'MCS0810'

FORTRAN Compiler

FEATURES
ANSI standard FORTRAN compilers
Supported by GENESYS operating system

Transtech provide FORTRAN compilers, to be used in conjunction with the GENESYS operating system, for both the transputer and Intel i860 processors. These ANSI standard cross compilers allow the efficient porting of existing FORTRAN applications code to the parallel processing resource hosted by either a Sun or Silicon Graphics Workstation.

Part Number for Transputer version 'MCS0320'
Part Number for Intel i860 version 'MCS0820'

Debugging Tools

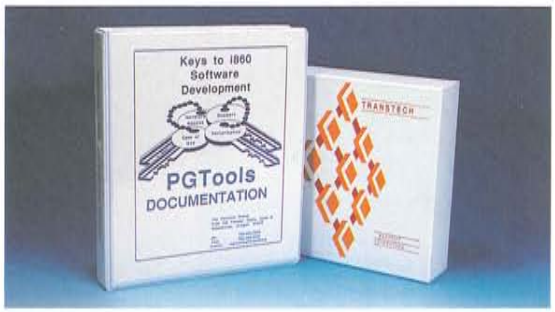
tdb and *tdbtool*

FEATURES
Full source level symbolic debugger for use with GENESYS
Debugging support for complex parallel software

tdb is the GENESYS source level debugger for the GENESYS compatible C and FORTRAN compilers. It is a 'dbx' like program which can be used to debug software while it is running in the GENESYS environment.
tdbtool is an additional facility which allows the user to interact with the tdb debugger using a mouse driven Sunview windows front end. Separate windows are provided for access to tdb and the source being debugged.

Part Number for transputer version 'MCS0380'
Contact nearest Transtech office for details of i860 debugger.

Assembler etc.



FEATURES
Assembler, Loader and Archiver for use with Intel i860
Required to support i860 GENESYS and compilers

The Assembler, Loader and Archiver for the GENESYS operating system to support the i860 are available as a separate product. This product is essential to be able to use GENESYS with the Transtech i860 hardware.

Part Number 'MCS0830'

REMOTE

Interface and Utilities

FEATURES
REsource Management Toolkit
Integrates Multi-Computing Platforms to SunOS/IRIX
Resource search and acquisition utilities

REMOTE provides the SunOS or IRIX interface and utilities needed by the Multi-Computing hardware for the Multi-Computing software to operate. There are separate versions for Sun3, Sun4, SPARCstations and Silicon Graphics workstations. REMOTE will support the MCP500 and MCP1000 boards or the SBus interfaces This product is essential for all systems on Sun or Silicon Graphics workstations.

Part Number 'MCS1001'

Please specify host machine type and host operating system version when ordering.

Multi-Computing Software for UNIX

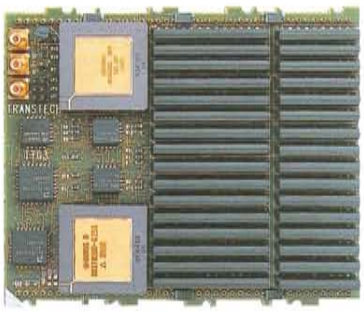
occam TDS

FEATURES
Full binary compatibility with IMSD700 TDS
Integrated into SunOS UNIX host environment
Supported on Sun3, Sun4 and SPARCStations

The Inmos occam TDS has been ported to run on a network of processors resident in, or connected to a Sun Workstation. The Transtech version of the TDS is fully binary compatible with the IMSD700E TDS3 product for IBM PC's and compatibles. Single or multi-user licences are available.

Part Number 'MCS0204'
Contact Transtech for availability of TDS on Silicon Graphics.

Graphics Support



FEATURES
Support for TTG3 Graphics TRAM under GENESYS
Implementation of Transtech TTGS

The Transtech TTG3 is a high resolution graphics device for transputer based systems providing video at up to 1280 x 1024 8 bit pixels. The TTGS library provides key graphics primitives callable from the user program running on the network of transputers.

Part Number 'MCS0110

3L C Compiler

FEATURES
Implementation of 3L C for Sun Workstations
An upgrade path for binary code from PC's

The 3L C system has been ported to the Sun3, Sun4 and SPARCstations to enable users to migrate their software development from PC based transputer systems to the more professional SunOS UNIX environment. There are single and multi-user licences available. There is no support for T-Bug.

Part Number 'MCS1050'
Please specify number of users at time of order.

Multi-Computing Software for UNIX

3L FORTRAN

FEATURES
Implementation of 3L FORTRAN for Sun Workstations
An upgrade path for binary code from PC's

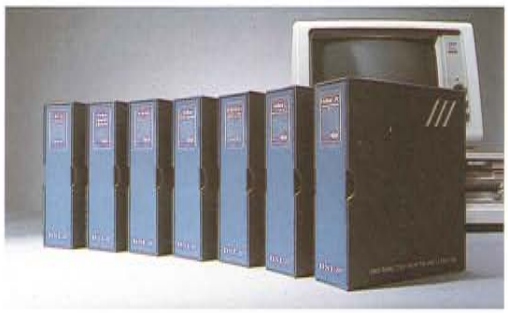
The 3L FORTRAN system has been ported to the Sun3, Sun4 and SPARCstations to enable users to migrate their software development from PC based transputer systems to the more professional SunOS UNIX environment. There are single and multi-user licences available. There is no support for T-Bug.

Part Number 'MCS1060'
Please specify number of users at time of order.

Helios

FEATURES
Implementation of Helios Operating System for Sun

Helios is a multi-processor operating system designed specifically for the transputer. It provides a multi-user, multi-tasking environment.
Part Numbers
H54001 Helios operating system and C compiler
H51002 Helios FORTRAN compiler
H51008 Helios Pascal compiler
H51003 Helios Modula-2 compiler
H52002 Helios assembler macro pre-processor
H52006 Helios Source Debugger
H52016 Helios file server for use with Transtech TTM11-2
H52009 Helios vector library
H52011 Helios maths library



STRAND88

FEATURES
STRAND88 is a high level language to control the initiation, synchronisation and termination of processes

Low level languages such as C and FORTRAN can be incorporated to handle the computationally intensive parts of the application

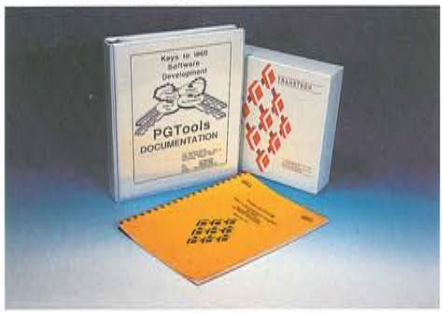
STRAND88 is a general purpose programming language for concurrent computers. It allows programmers to develop efficient portable software which can then run on a wide range of multiple processor machines of different types and configurations.
STRAND88 is currently implemented on the Sun and Multi-Computing Platforms under the Helios Operating System.

Part Number 'MCS0088'

Parallel Software for DOS

i860 DOS support

PCi860-AL



FEATURES
Support for Transtech TTM100 in a PC running DOS
Provides Assembler, Archiver, Loader and Drivers

The PCi860-AL provides the support necessary for the Transtech TTM100 to be used in a PC running DOS. It provides a PC interface, driver and utilities to support a single TTM100's in a DOS based environment. Transtech also provide C and FORTRAN compilers to complement these systems. It is strongly recommended that the Transtech TMB16 motherboard is used with this system to provide greater bandwidth between the PC and the i860. Support for multiple i860s and for mixed networks with transputers is provided by the additional product PCi860-M.

i860 C

PCi860-C

FEATURES
Industry standard C compiler
For use with PCi860-AALD i860 support

The PCi860-C provides a native i860 C compiler to enable existing code to be ported to the powerful Intel i860 64-bit microprocessor. It also enables new applications to be developed in an industry standard familiar language.

i860 FORTRAN

PCi860-F

FEATURES
ANSI FORTRAN compiler
For use with PCi860-AALD i860 support

The PCi860-F provides a native FORTRAN compiler to enable existing code to be ported to the powerful Intel i860 64-bit microprocessor.

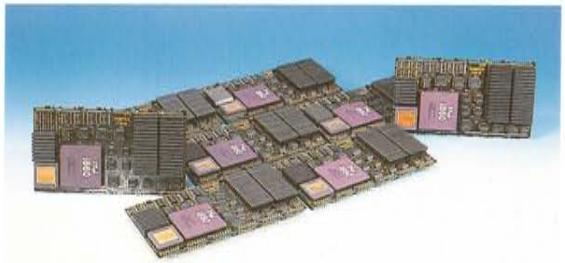
Parallel Software for DOS

Multiple i860s

PCi860-M

FEATURES
Support for Transtech TTM100s in a PC running DOS
Provides support for multiple i860s

The PCi860-M provides the support necessary for multiple Transtech TTM100s to be used in a PC running DOS. It also provides support for mixed networks of i860s and transputers. the Inmos ANSI C Toolset is included with this product.



ANSI C Toolset

IMSD7214

FEATURES
Full ANSI C compiler (X3.159-1989)
Support for all Inmos Processors
Support for Parallelism
Interactive and post mortem symbolic debugging

The ANSI C Toolset provides both native and cross compilers for the range of transputer processors. A full set of ANSI libraries is provided for each processor type. Interactive symbolic debugging can be performed if there are at least two processors in the system. The ANSI C Toolset needs no other software components to provide parallel processing support.

occam Toolset

IMSD705

FEATURES
Complete occam 2 development system
Tools run from DOS command line

The occam Toolset is a complete development system for programming and debugging networks of transputers. It can be used to develop applications for single or multi-processor systems.

Parallel Software for DOS

occam TDS

IMSD700

FEATURES
Integrated folding editor user interface
Full implementation of occam 2 language

The occam TDS version IMSD700E provides an implementation of the occam 2 parallel programming language. It allows the user to build application programs for single or multi-processor networks of transputers. The occam TDS includes the fully integrated folding editor.

3L C

TSS-PLC

FEATURES
Kernigan and Ritchie C compatibility
Produces code for IMST4XX and IMST8XX transputers

3L Parallel C provides an easy to use system for developing transputer applications in a familiar industry standard language. It enables existing code to be ported to transputers with relative ease. Parallel C supports both single and multi-processor developments. Binary code produced is compatible with 3L FORTRAN and Pascal which allows languages to be mixed and linked together to run on the same network of transputers. It is recommended that the T-Bug debugger is also used in conjunction with Parallel C.

3L FORTRAN

TSS-PLF

FEATURES
Full ANSI standard FORTRAN X3.9-1978
Produces code for IMST4XX and IMST8XX transputers

3L Parallel FORTRAN provides an easy to use system for developing transputer applications in a familiar industry standard language. It enables existing code to be ported to transputers with relative ease. Parallel FORTRAN supports both single and multi-processor developments. Binary code produced is compatible with 3L C and Pascal which allows languages to be mixed and linked together to run on the same network of transputers. It is recommended that the T-Bug debugger is also used in conjunction with Parallel FORTRAN.

Parallel Software for DOS

3L Pascal

TSS-PLP

FEATURES
Full ISO 7185 Pascal
Produces code for IMST4XX and IMST8XX transputers

3L Parallel Pascal provides an easy to use system for developing transputer applications in a familiar industry standard language. It enables existing code to be ported to transputers with relative ease. Parallel Pascal supports both single and multi-processor developments. Binary code produced is compatible with 3L C and FORTRAN which allows languages to be mixed and linked together to run on the same network of transputers. Parallel Pascal does not support symbolic access to variables when using T-Bug.

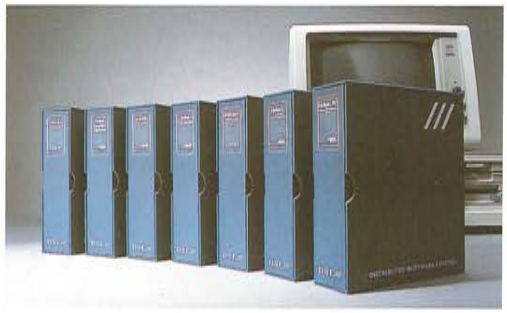
3L T-Bug Debugger

TSS-BUG

FEATURES
Windows based debugger for 3L's Parallel compilers

T-Bug is an interactive source-level debugger designed for use with 3L's Parallel compilers for the transputer. T-Bug allows the user to observe and interact with running transputer programs which may comprise several concurrent tasks and many threads of execution. The T-Bug debugger can only be used with the 3L compilers hosted on a PC based system and not on UNIX workstations.

Helios



Helios is a multi-processor operating system designed specifically for the transputer. It provides a multi-user (with multiple PCs), multi-tasking environment.

Part Numbers

H40002 Helios operating system
H44002 Helios operating system and C compiler
H41002 Helios FORTRAN compiler
H41008 Helios Pascal compiler
H41003 Helios Modula-2 compiler
H42002 Helios assembler macro pre-processor
H42006 Helios Source Debugger
H42001 Helios PC graphics library
H42016 Helios file server for use with Transtech TTM11-2
H42014 Helios X windows for use with Transtech TTG3
H42009 Helios vector library
H42011 Helios maths library

Library support products

MathAdvantage

FEATURES
Scientific and Vector libraries

Mathadvantage is a library of over 260 (single and double precision) generic scientific/vector functions. A version of the library compiled for implementation on the i860 is supplied as standard with the Transtech TTM100, and is callable from an application written in occam, C, or FORTRAN running on the Transputer. MathAdvantage is also available for use with GENESYS on both IMST800 and i860 processors. A hand coded version of the library is available for the i860.

Contact Transtech for full details of the different versions.

Image Processing

IPLIB

FEATURES
NEL's IPLIB Image Processing Library

IPLIB is an Image Processing library written in C consisting of over 200 of the most common and useful image processing functions available. The functions range from simple row, column and pixel manipulation to complex line extraction and component texture recognition.
A transputer object code version is supplied as standard with the TTG-F framegrabber TRAM. Source code and object code versions for the TTM100 i860 TRAM are also available.

Veclib

FEATURES
IMST800 Vector Library

Veclib is a library of over 350 hand coded IMST800 assembly language routines. It includes functions for manipulating real as well as complex vectors. Veclib is available for GENESYS, 3L, Helios, Logical Systems C and occam TDS/Toolset.

Contact Transtech for full details of the different versions.

Parallel Technology Enclosures

VME Towers

FEATURES
8 to 20 slots, 6U or 9U backplane
500 to 3000 Watt power supply
Complies with FCC regulations
Options for internal peripherals

Transtech's range of VME Towers are used to accommodate both the 6U and 9U VMEbus TRAM motherboards. The VME Towers can also support the host computer processor boards and other peripheral boards, providing a cost effective method of building stand alone Sun or Silicon Graphics UNIX workstations. Configurations available include 8 6U slots, 12 6U slots, 20 6U slots, 12 9U slots and 20 9U slots. Contact your nearest Transtech office to discuss your complete requirements.

TMB12 Towers

FEATURES
6 or 10 slots for Transtech TMB12 TRAM motherboards
500 Watt power supply
Complies with FCC regulations
Options for internal peripherals

The TMB12 Tower range provide professional enclosures for up to10 TMB12 TRAM motherboards with adequate power supply and cooling. The slots are provided on a 1" pitch to allow Transtech TMB12 motherboards fully populated with TRAMs to be placed in adjacent slots and to provide enough space for airflow.

PC AT Enclosure

FEATURES
13 Passive slots for AT bus compatible boards
Complies with FCC regulations

The Transtech PC AT enclosure provides a passive AT bus backplane with 13 slots, together with adequate power supply and cooling. It is ideal for building parallel systems based upon the Transtech TMB03, TMB04, TMB08 and TMB16 boards.

Host Computers

Sun Microsystems

FEATURES
Sun SPARCstation range

Transtech as an Sun Authorised Reseller can provide the whole range of Sun Microsystems UNIX workstations for use with the relevant Transtech motherboards, interfaces and system software. Processor cards for use in Transtech VME Towers are also available.

Silicon Graphics

FEATURES
Silicon Graphics Incorporated workstations

Transtech as a Silicon Graphics Value Added Reseller can provide Silicon Graphics Personal IRIS and Power Series for use with the relevant Transtech motherboards, interfaces and system software. Processor cards for use in Transtech VME Towers are also available.

Personal Computers

FEATURES
286, 386 and 486 PC's

Transtech can provide ranges of well known 286, 386 or 486 Personal Computers, with options for colour monitors and hard disks. Transtech can configure your PC based parallel processing system for you before despatch from our factory.

Acknowledgments

GENESYS is a commercial operating system. It is developed from the Trollius Operating System originally developed at Cornell and Ohio State Universities. Transtech acknowledges the development efforts of these Universities to create Trollius and is grateful for the assistance received when developing GENESYS.

Transtech Parallel Systems Product Overview. April 1991.

TRANSTECH
PARALLEL TECHNOLOGY

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Email: transtech @ transtech.co.uk
or transtech @ transt.uucp

Representative:–