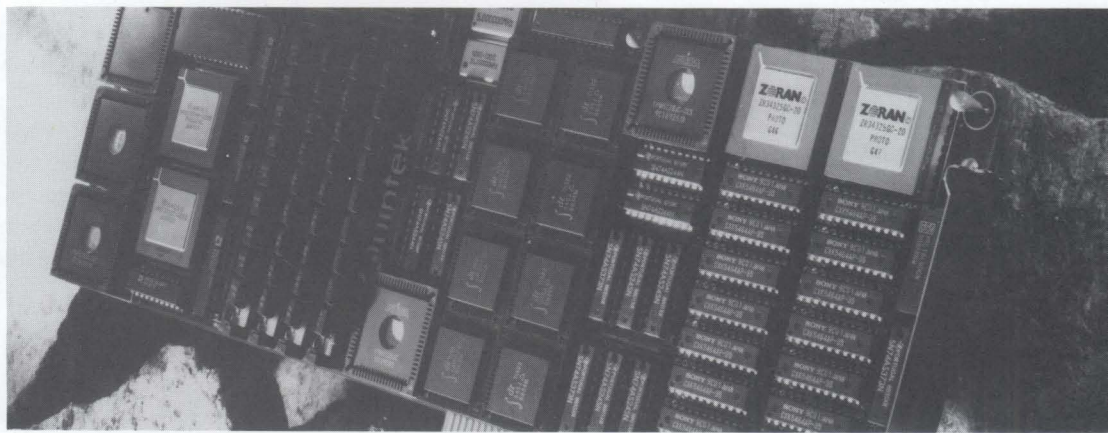


QVA-PC QUINTEK VECTOR ACCELERATOR FOR THE IBM PC/AT

- 90 MFLOP peak power.
 - Two high-speed ZR34325 vector processors.
 - Supports digital filtering, FFT and mathematical algorithms.
 - Floating point arithmetic to IEEE P754-1985 standard.
 - Integrated software support from Fortran, Pascal or C.
-
- Fast IMS T800 scalar processor for user programs.
 - All processing and data transfers fully overlap.
 - Rationalised connections to run multiple boards in parallel.
 - 6 MByte/second interface to IBM PC/AT.
 - Natural match to the Quintek Fast series.



The Quintek Vector Accelerator QVA-PC is an IBM PC/AT board designed to speed up vector operations for engineering, mathematical and image-processing by factors up to 60 over a single transputer.

It incorporates a fast scalar processor with up to 16MBytes DRAM to run Fortran, Pascal and C programs efficiently. The dramatic speed enhancement is provided by the single or dual ZR34325 vector co-processors with up to 512 KBytes SRAM, arranged so that all processors and data transfers can run concurrently.

Support software includes a library of vector routines callable from Fortran, Pascal and C, driver utilities to load and run library modules and a tutorial program.

The control and 8-link connections between boards enable any number of similar boards to be combined in a flexible parallel network. A dual-port host interface provides a 6MByte/sec data transfer rate to the IBM PC/AT.

Quintek

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Applications

The QVA-PC may be used for numeric array processing for mathematical and engineering simulations, for spectral analysis and digital filtering of radar, sonar or transducer signals, and for reconstruction of medical scanner images, image filtering, image decimation and interpolation and for real-time control applications.

Software Support

The QVA-PC is designed to accelerate Fortran, Pascal and C functions and so bring the benefits of very fast hardware to existing programs with minimum software changes.

The QVA software is organised as a library of vector routines running on the ZR34325 co-processors together with driver utilities to organise data transfers and to load and run the modules efficiently.

Two library versions are available: the Zoran library with its comprehensive list of vector routines and the Quintek library which provides an optimised subset with examples. Users may extend the library by writing their own ZR34325 routines using the Zoran Development System.

Benchmarks

Vector processors (20Mhz):	single	dual
1024 point real FFT	1.5 ms	0.79 ms
1024 point complex FFT	2.1 ms	1.09 ms
3x3 convolution (256x256)	20.1 ms	10.15 ms
32-tap FIR (128 real points)	0.47 ms	0.24 ms
10 x 10 matrix multiplication	0.16 ms	0.08 ms
1024 element dot product	0.22 ms	0.11 ms

These figures are for data resident in static ram processed by a ZR34325C-20. The 1024-point complex FFT using the TopExpress single-precision CFFT algorithm on an IMS T800-20 with 4 cycle memory takes 117 ms.

Multiple Board Operations

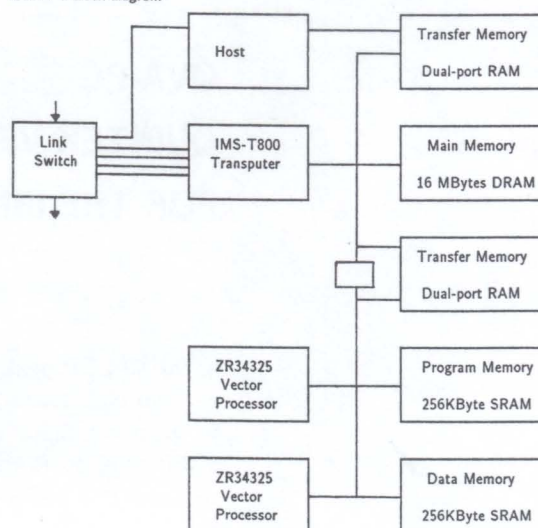
Boards may be connected together through a eight-link connection system with inter-board control. This allows two or more boards to be connected, controlled and configured by software into an integrated network for a true parallel processing system.

All software is organised for a parallel environment which extends naturally to multi-board systems. Thus for compute-intensive tasks such as 2-D FFT processing on images it is possible to quadruple the throughput by connecting up four QVA-PC boards together.

Fast Data Transfer

The QVA-PC is structured for fast processing and overlapped data transfer. Computation on the transputer, computation on both vector processors, the data transfer between them, transfers down inter-board links and across the 6MByte/sec host interface can all run concurrently, limited only by the Dram memory bandwidth.

QVA-PC block diagram



The Zoran ZR34325 Vector Signal Processor

The ZR34325 stands out from other DSP chips having an instruction set composed almost entirely of high-level algorithms such as FFT, FIR, matrix multiply and polynomial expansion. It contains internal data and instruction caches so that two co-processors can share the same external bus and double the peak throughput.

The QVA-PC has options of up to 16 MBytes of dynamic RAM and up to 512 KBytes of static RAM, giving it ample resources to handle complete complex images or large Fortran programs. All arithmetic is performed according to the IEEE P754-1985 specification.

QVA-PC Package

The QVA-PC is a full-sized PC-AT board and is supplied complete with the QVAFFT software package to run under MS-DOS with 3L Parallel C v2.1 or 3L Parallel Fortran v2.0. A FFT demonstration program is supplied together with a test suite, installation guide and a comprehensive manual detailing the use of the library and driver software.

Product Support

Quintek fully supports both hardware and software, and can advise on obtaining the full benefits from our high performance products. Products are guaranteed for 12 months from the date of purchase.

Ordering Information

Part Number	ZR34325	Dram	Sram
QVA-PC-D4M-1Z20-S312K	1x20Mhz	4M	312K
QVA-PC-D4M-2Z20-S512K	2x20Mhz	4M	512K
QVA-PC-D16M-2Z20-S512K	2x20Mhz	16M	512K

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