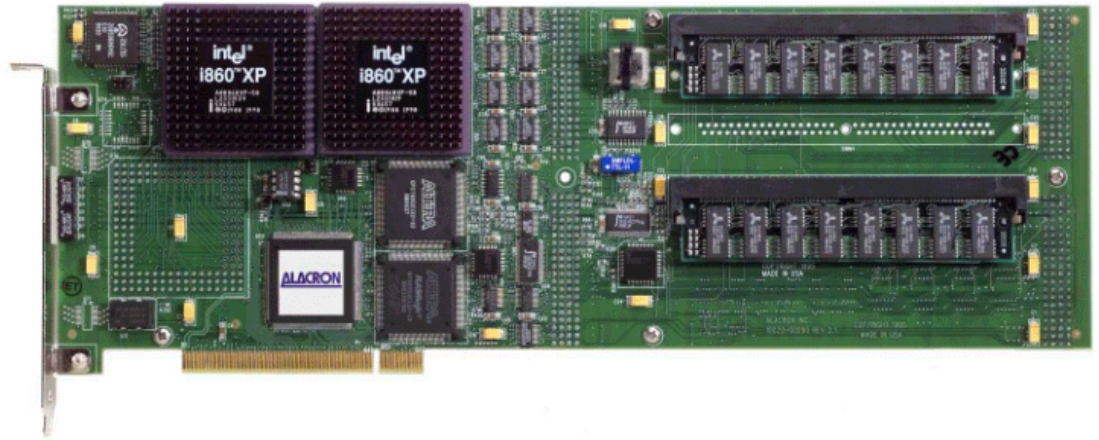# FT-200-PCI Processor Board for PCI Bus

//////////ALACRON

Alacron offers two families of processor boards based on Intel's i860 RISC processors: the AL-860 and FT-200. These boards are ideal for accelerating Digital Signal Processing (DSP), graphics and imaging processing applications.

Features

Features common to all Alacron FT-200 boards include:

- ➢ Single i860 XR
- ➢ Up to 200 MFLOPS / 100 MIPS
- ➢ Up to 256 MB Addressable Memory
- ➢ FastTrack™ connection to I/O and processor daughter-cards
- ➢ Real-time OS
- ➢ DOS, Windows, Unix interfaces
- ➢ Available for PCI computers

The FT-200s are single or dual 50 MHz i860 XP-based board-level subsystems, available for PCI bus computers. The FT-200 implements a fully symmetric multiprocessing model, sharing addressable memory equally between i860s. The FT-200 has a 200 MB/sec system bus, and with two processors operates at 200 MFLOPS / 100 MIPS. The FT-200 can execute a 1K complex FFT in under 320 microseconds using both i860's, and in 560 microseconds using a single processor. The FT-200's addressable memory is expandable from 8 MB to 256 MB. The FT-200 subsystem provides two FastTrack expansion connectors. These connectors implement Alacron's stackable daughter-card protocol, and together can support a combination of up to six I/O and processor daughter-cards.

FastTrack Interface

Alacron provides a family of I/O expansion boards which mount on the FastTrack connectors of the FT-200. Software drivers are available for all boards.

- ♦ High Performance Digital (Camera) Interface
- ♦ Digital Framegrabbers
- ♦ High Performance Digital I/O Interface
- ♦ Video Display Adapter
- ♦ FT-2106x-DC 8 SHARC Daughter-cards
- ♦ SCSI, VSB, DT-Connect, VISIONbus Interfaces

Heterogeneous Processing & Migration Paths

Alacron's 8 SHARC FT-2106x-DC daughter-card is also compatible with the FT-200's FastTrack expansion interfaces, proving an ideal heterogeneous processing environment, as well as an easy migration path between processor families.

Software Libraries

Alacron's FT-200 computing subsystems are supported by an extensive suite of application specific libraries for image processing, DSP and graphics applications.

- ➢ Vector Numerical Library
- ➢ Real-time Image Processing Library
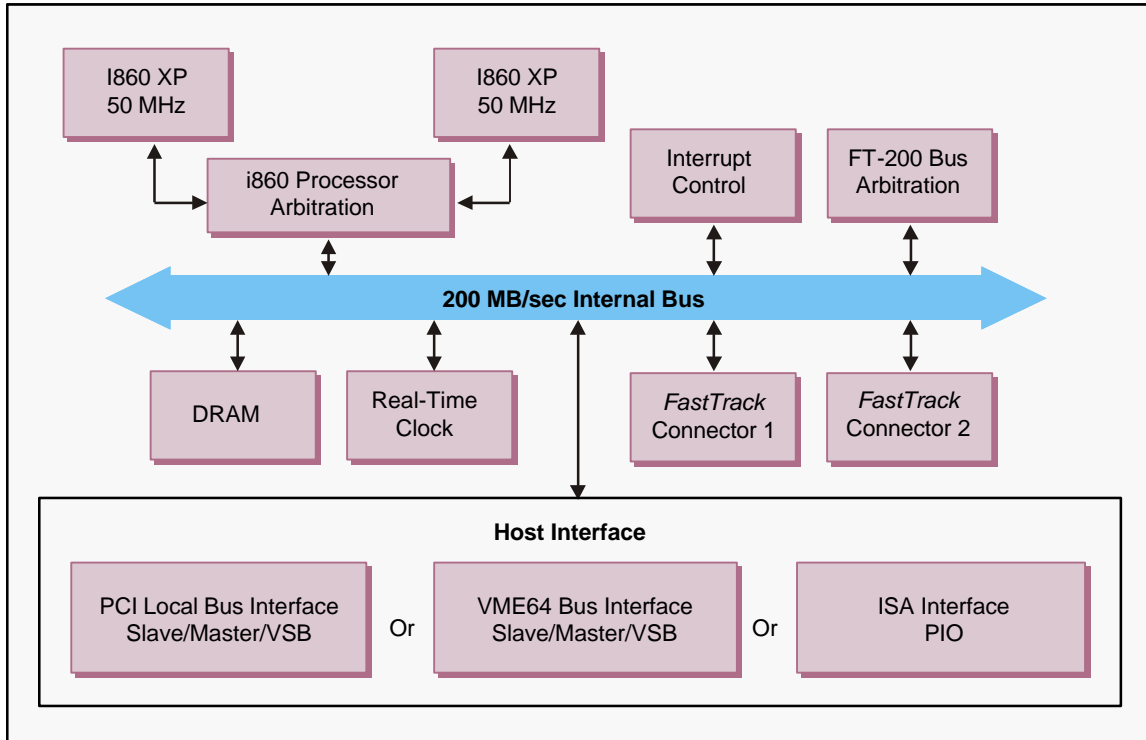
FT-200 Architecture

Processing Environments

Alacron's RT operating environment provides several processing models. Applications can run as simple attached processes on the FT-200 processor boards, as stand alone tasks on the host, or as separate tasks on the host and on the FT-200. Alacron's RT supports Microsoft DOS, Windows 3.1, Windows NT, Windows 95/98, Solaris, LynxOS, and VxWorks.

Development Tools

A full suite of ANSI development tools for C and FORTRAN is available. Compilers support general purpose and numerically intensive applications. Profilers and debuggers are available.

Specifications

FT-200 Multiprocessor Board

Processor .... Intel i860XP

Number of i860s ..... 1 or 2

Clock speed .... 50 MHz XP

Memory .... 8 MB to 256 MB

External I/O .... 160 MB/sec (FT-DT Burst) 158 MB sustained

Intel i860 CPU

Precision .... IEEE (754) floating point Single (32-bit) precision Double (64-bit) precision

Performance .... 100 MFLOPS, 50 MIPS @ 50 MHz

3D unit .... Z buffering Pixel interpolation 3D shading

MMU .... 4K & 4M page sizes

Data bus .... 128-bit Internal 64-bit External

Cache .... 16 KB data, 16 KB instruction

FT-200 Board Peak Performance

MFLOPS .... 200 MFLOPS

MIPS .... 100 MIPS

1K complex FFT ...... < 550 MS, 1K complex 1xP 320 MS 2xP

512 image processing
- 2D real FFT .... 0.188 Sec 512x512
- 3x3 convolution ...... 51 mSec 512x512

PCI Interface

Bus specification ..... 8, 16, 32 bit PCI format

Control registers ...... I/O Mapped

Global memory .... Memory Mapped

PCI/global .... 132 MB/sec burst memory

PCI/global .... 70 MB/sec sustained memory

PCI/global .... 16 MB/sec random memory

PCI Electrical and Environmental

Power .... +5 volts at 5A

Dimensions .... 12.7 x 35.6 x 1.9 cm

Operating temp. .... 0–50 degrees centigrade

Relative .... 95% noncondensing humidity

FT-I/O Expansion Boards

Alacron provides a family of I/O expansion boards for the FT-200 family:

♦ FT-DI: Digital Input/Framegrabber
♦ FT-DIO: Digital I/O Module
♦ FT-DT/4: Programmed I/O Interface Module
♦ FT-DT/IN: DT DMA Input Interface Module
♦ FT-SCSI: SCSI Bus Interface
♦ FT-VB: VISIONbus Interface
♦ FT-VDA: Video Display Adapter