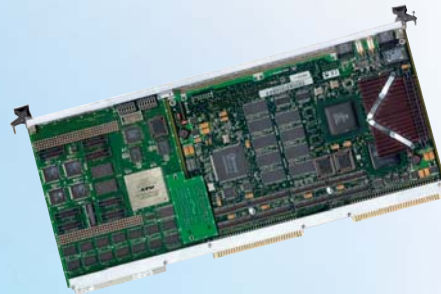


Telemetry West

FIELD PROGRAMMABLE PROCESSOR 4

FPP523-256



The Field Programmable Processor 4 (FPP4) is the Model 550 and Avalon's third-generation real-time programmable processor. It produces over twice the throughput in half the space as the previous generation processor. The FPP4 uses a standard off-the-shelf 350 MHz Power PC 6U VME single board computer (SBC) to achieve its unprecedented performance of over 3 million basic algorithms per second. The use of Motorola COTS SBCs provides a ready upgrade path to emerging technologies. The SBC is connected to the system's high-speed processing bus, the MUXbus, via a 3U interface module that supports original FPP3 MUXbus mezzanines. In addition, two PCI Mezzanine Cards (PMCs) can be added to the SBC for special applications. Adding FPPs achieves a linear increase in system performance thanks to the system's data flow architecture.

The FPP4 dramatically enhances the system's algorithm capabilities. Not only does the FPP4 double the performance of such basic algorithms as "average over n" and "fifth order EU conversions," it further boosts the performance of large gain algorithms (e.g., signal analysis, secondary PCM decommutation, etc.). For maximum flexibility, you can modify algorithms from L-3's extensive libraries creating, simulating, testing, debugging algorithms in 'C' language or assembler on the system's workstations.

KEY FEATURES

- Processes 16- and 32-bit words directly
- Performs nth-order EU conversions and secondary telemetry PCM decommutation for complex multiformat embedded asynchronous and IRIG 1553 streams
- Uses C for developing application-specific algorithms
- Utilizes upgradable COTS high-performance Power PC VME single board computers (SBCs)
- Links multiple standard and/or user-developed algorithms to form a large single algorithm
- Utilizes multiple FPPs to achieve linear (scalable) increases in throughput
- Allows you to augment processing or I/O with a variety of optional MUXbus and PMC mezzanine modules



Excellence You Can Measure

FPP523-256 SPECIFICATIONS

Inputs

MUXbus Data	.16- or 32-bit data input; prime (raw), derived, processed data from all input sources
Maximum Parameters	.Up to 65,535, dependent on number and type of algorithms per parameter
Input Formats	.32-bit binary, 2's complement, 1's complement, sign magnitude, offset binary, 32-bit exponential (IEEE 754-1985 floating point format)
Interrupt	.VMEbus and MUXbus
VME Interrupt	.Level 1 to 7, 32-bit vector

Processing

Processor	.350 MHz 32-bit Power PC 750
Memory:	
EPROM	.1 MB socketed, 8 MB surface-mount
Cache	.1 MB
NVRAM	.8 kB total; 4 kB user
Battery	.10-year removable
Main Memory	.64 MB SDRAM
Input FIFO	.4K words
Output FIFO	.4K words
Processor Performance:	
Floating Point (32-bit)	.SPECfp95: 10.5
Integer	.SPECint95: 15.4
Algorithm Library	.Over 150 algorithms included (e.g., nth-order polynomial, arithmetic, logical, compression)
Embedded Decommuration	
IRIG 106-96	.PCM Class II asynchronous embedded decommuration formats and Chapter 8 MIL-STD-1553
100% acquisition standard	
Max. Throughput Rate	.3.5 million parameters
Algorithm Performance (nominal):	
1st-Order Polynomial	.2.55 M/sec
5th-Order Polynomial	.2.15 M/sec
Average Over n	.3.54 M/sec
In Limits	.2.71 M/sec
Bit Mask	.2.76 M/sec

I/O Options

Ethernet	.1 10/100 Mbps port
RS-232	.1 port
PMC Mezzanine	.2 modules
MUXbus Mezzanine	.1 module
MUXbus	.32-bit, 16-bit extended, or 16-bit zero extended integers, or 32-bit floating point for output, display, or further processing

Outputs

Max. Number of Output Parameters per Module	.65,535
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Functions

Real-Time Derived Processing	.Single or linked; serial or in parallel on multiple processors
Alarm Gathering	.Routed to MUXbus and/or graphics workstation for display
Data Gathering	.Transfer selected real-time MUXbus data to the VMEbus

Program Setup and Control

Keyboard and Mouse	.Fill-in-the-blank OSF/Motif™ displays with list-pick selections
ASCII Text File	.User-created description
API	.Application Programming Interface for remote setup (option)

General Requirements

System 550 Chassis	.1 9U slot
Maximum per Chassis	.14
Maximum per System	.112
Rear Panel	.RS-232 (RJ45 and DB25), Ethernet (RJ45): 1 slot
Power	.5V @ 5.0 A
Environment	.See Model 550 chassis data sheet
Dimensions	.365mm (9U) x 160mm (Eurocard std.)
Status Display	.8 LEDs and 8 character display

Telemetry-West

9020 Balboa Avenue
San Diego, CA 92123-3507
858.694.7500 800.351.8483
Fax: 858.279.0693
www.L-3Com.com/TW



Telemetry & RF Products