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Embedded - Microcontrollers - Application Specific: Tailored Solutions for Precision and Performance

Embedded - Microcontrollers - Application Specific represents a category of microcontrollers designed with unique features and capabilities tailored to specific application needs. Unlike general-purpose microcontrollers, application-specific microcontrollers are optimized for particular tasks, offering enhanced performance, efficiency, and functionality to meet the demands of specialized applications.

What Are Embedded - Microcontrollers - Application Specific?

Application specific microcontrollers are engineered to

Details

Product Status	Active
Applications	Network Processor
Core Processor	UFE4
Program Memory Type	-
Controller Series	-
RAM Size	-
Interface	Asynchronous Host Interface
Number of I/O	-
Voltage - Supply	-
Operating Temperature	-
Mounting Type	Surface Mount
Package / Case	676-BGA, FCBGA
Supplier Device Package	676-FCBGA (27x27)
Purchase URL	https://www.e-xfl.com/product-detail/microsemi/wds3-ufe4-12-dc

UFE412

Universal Front End Processor

Released Product Brief



Product Overview

The UFE412 Universal Front End Processor leads PMC-Sierra's UFE4 product family in features, port density and performance. The UFE412 is a preconditioning co-processor for WinPath3-based Applications targeted for Wireline and Wireless Backhaul Solutions. Together, the WinPath3 and the UFE412 create a platform that enables highly integrated solutions for a range of port densities and bandwidth configurations scaling to 4 x OC-3/STM-1 rate with full APS 1+1 redundancy.

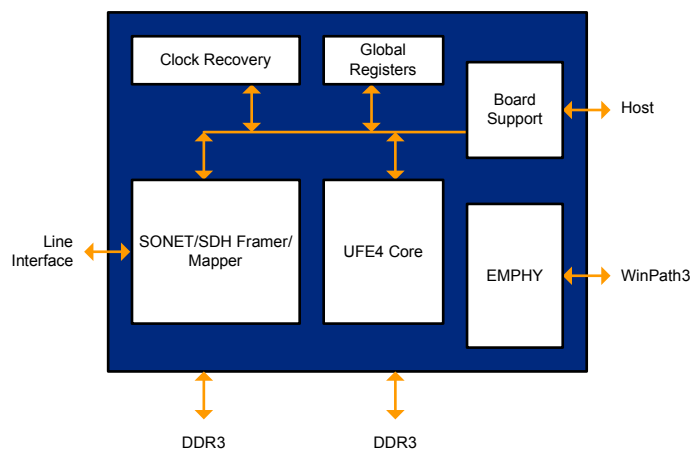
The UFE412 device enables the WinPath3 to efficiently support a variety of services: TDM, ATM, HDLC, PPP, and Circuit Emulation. The WinPath3 itself also supports many protocol interworking services, including CES over PSN, ATM over PSN, IP interworking (routing), ATM cell switching, IMA, ML-PPP and others. The WinPath3/UFE412 platform allows maximum flexibility and feature richness together with efficiency in cost, power and board space.

PMC offers two variants of the UFE412 device. The UFE412-T series is optimized for CESoP/SAToP applications, while the UFE412-M series provides multi-protocol support.

Benefits

- Enables Any Service, Any Port architecture for all backhaul applications
- Provides high performance, fully featured solution
- Lowers overall system BOM cost
- Reduces time to market
- Minimizes design effort and risk

Block Diagram



Product Highlights

- Up to 8 Optical Line Interfaces
- Fully featured Framer/Mapper for up to OC-12/STM-4 bandwidth
- 1344 channels, ranging from a single DS0 to full OC-12c/STM-4
- 1+1 APS protection on all ports (up to 4 working ports and 4 protection ports)
- Up to OC-12/STM-4 total bandwidth
- Requires only 2 x DDR3 devices for full bandwidth. ECC supported.

Data Path Highlights

- Support for CES, ATM, HDLC and POS pre-processing
- Independent Protocol Machines, scalable to the full device bandwidth

Integrated Framer/Mapper

- Each of the 4 ports can be configured as OC-3/STM-1 or OC-12/STM-4 for a total bandwidth of OC-12/STM-4
- Up to 336/252 T1/E1
- Alarms and Events processing via Asynchronous Host Interface
- Overhead Processing via Asynchronous Host interface
- 1+1 APS protection on all ports (up to 4 working ports and 4 protection ports)

Clock Recovery Highlights

- Independent Clock Recovery Per Channel (up to 336 channels)
- Support for both Differential and Adaptive Clock Recovery for all channels

System Bus and Memory Interfaces

- Up to 2 x 16 bit DDR3 @ 400MHz
- Asynchronous peripheral bus for Host control
- 16 bit EMPHY bus towards the WinPath3

Electrical & Mechanical

- 27mm x 27mm 676 FCBGA with 1mm ball pitch
- Estimated power consumption 6 W at nominal clock rate, depending on configuration

Reference Boards

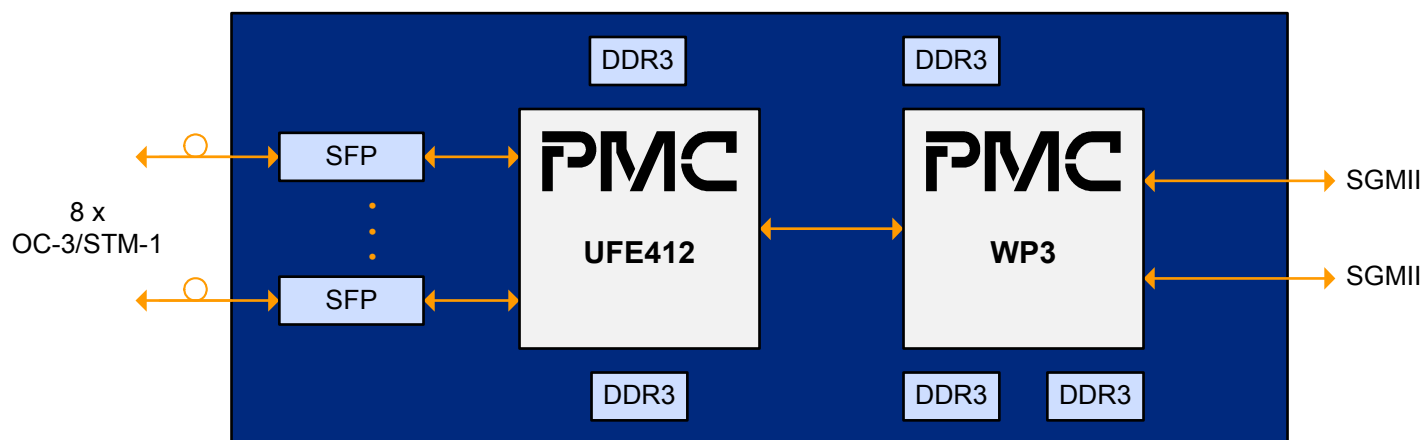
- UFE412 Reference Boards are available for early software development as add-on boards to standard WDS3 development boards

UFE412 High Level Feature Summary

			UFE412-M4/T4*	UFE412-M2/T2*	UFE412-M1/T1*
Channelized	Max Bandwidth		622 Mbit/s	311 Mbit/s	155 Mbit/s
	Protocols	CESoP/SAToP	Yes	Yes	Yes
		ATM (IMA)	Yes	Yes	Yes
		PPP/ML-PPP	Yes	Yes	Yes
	Ports		4+4	2+2	1+1
	Description		4xOC-3/STM-1 1xOC-12/STM-12	2xOC-3/STM-1	1xOC-3/STM-1
Concatenated (Clear Channel)	Max Bandwidth		622 Mbit/s	311 Mbit/s	155 Mbit/s
	Protocols	POS	Yes	Yes	Yes
		ATM	Yes	Yes	Yes
	Ports		4+4	2+2	1+1

* ATM/IMA, PPP/MLPPP and POS protocols are not available on T Series

Typical WinPath3/UFE412 Board



Further Resources

Technology Webpage

www.pmcs.com/products/mobile_network/mobile_backhaul/

Technical Documentation

www.pmcs.com/resources/downloads_support.html

About PMC

PMC (Nasdaq:PMCS) is the semiconductor innovator transforming networks that connect, move and store digital content. Building on a track record of technology leadership, we are driving innovation across storage, optical and mobile networks. Our highly integrated solutions increase performance and enable next generation services to accelerate the network transformation. For more information visit www.pmcs.com.

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