

MSP7162 GPON RG

Fiber Access Residential Gateway

Product Overview

The MSP7162 Fiber Access Residential Gateway is a second generation device that combines PMC-Sierra's multi-service 7100 Series architecture with proven GPON ONT technology for low-cost, high performance GPON FTTH CPE gateways. It supports an integrated GPON subsystem, multiple 10/100/1000BaseX MACs, dual USB 2.0 interfaces, and a DDR2 memory interface. A Linux software development kit (SDK) that includes voice processing and GPON management modules are included to streamline application integration and quicken time to market.

This multifunction residential gateway processor addresses carrier service delivery needs by simultaneously providing superior data path performance, application processing, and robust voice processing in a cost/performance efficient implementation. Its 600 MHz multithreaded 7100 Series core dynamically allocates resources between voice, video, and data processing services, to guarantee consistent, high-quality broadband networking performance. It supports gateway designs that enable a service-grade digital home with the gigabit boost required for IPTV.

Its superior packet processing and WT-156-compliant quality of service (QoS) performance, with advanced remote management capabilities, addresses continuously evolving digital home use-cases, and provides carriers the ability to control in-home service distribution which is essential for a high-value consumer experience. This powerful engine provides the necessary performance and connectivity for service revenue-generating broadband portals.

The MSP7162 is a multithreaded SoC that shares the MSP7100 Series architecture and Linux-based embedded software. Its ITU-T G.984 GPON ONT-standard interoperability is compatible with the MSP7160 GPON RG.

Benefits

The MSP7162 is a second generation device combining a proven GPON core and SoC. It provides exceptional simultaneous processing behaviors, which are essential for fiber access gateways to support triple-play and the evolution to true multi-service deployments.

PMC-Sierra's residential gateway solution delivers concurrent complex traffic management, routing, bridging, and firewall tasks with processing power to guarantee voice, video, and data service quality. These simultaneous processing capabilities ensure critical quality of experience (QoE) for all broadband service deployments.

Multi-function core provides exceptional processing power

- The 600 MHz multithreaded MSP7100 Series core achieves industry-leading processing power
- Guaranteed flexible networking performance with a significant throughput improvement compared to single-threaded processors
- Dynamic reassignment of processing cycles between diverse functions of the multi-service digital home with cycle guarantees for robust QoE
- High integration and RBOM optimization

Full ITU-T G.984 GPON ONT interoperability

- Based on the field-proven PMC Chicago solution leveraging the ITU-T G.984 GPON MAC
- Supported by a comprehensive software package

GigaPASS Wire-speed performance

- Simultaneous 2.488 Gbit/s downstream and 1.244 Gbit/s upstream sustained PON traffic throughput at any packet size
- Provides essential headroom to address requirements for evolving services, service bandwidth, and digital home infrastructure: stronger management/control, interworking of HAN technologies for end-to-end QoS and gateway application processing

Advanced classification engine

- Supports classification, mapping, and filtering, according to L2/L3/L4 fields, double-tagged VLANs, MLD and IGMP multicast

Advanced QoS features to maintain Gigabit throughput

- Data path processing compliant with DSL forum Working Text WT-156 at Gigabit rates.
- Flexible queuing features enable queuing per user/service with per-queue WFQ/SP scheduling, shaping, and policing
- Provides exceptionally fast networking performance to leverage the full potential of next generation access networks and ultra-high speed home networking technologies.

Multi-service networking

- Greater packet processing permits advanced QoS features for robust service delivery, for high service bandwidth and guarantees for service growth

Robust voice processing

- VoIP Terminal Adapter functionality is guaranteed, independent of all other processing and traffic conditions
- Centralized voice processing enables resources to be dynamically allocated to other functions without influence from software

Programmer-friendly programming model

- Leverages standard tools and a large software ecosystem with best-of-breed components support
- Linux-based software stack
- Open MSP7100 Series programming model

Product Highlights

System Processor

- MSP7100 Series multithreaded core
- 32 KB zero wait state scratchpad
- DSP extensions for efficient voice processing
- 32-bit, 233-MHz multi-service bus with multi-master access
Flexible, programmable, hardware-based QoS multi-service bus arbitration allows provisioning of system bandwidth for high throughput peripherals
- Support for multiple transaction priority levels
- DDR2 SDRAM

Interfaces

- Integrated ITU-T G.984 compliant GPON MAC and SERDES
 - Line rate operation – 2.488 Gbit/s downstream; 1.244 Gbit/s upstream
 - Supports 8 T-CONTs
 - Supports 256 Port IDs
 - Supports NSR/SR DBA
 - US and DS FEC
 - AES decryption
 - Multi-queue QoS support
 - Dedicated GPON buffering
- Two 10/100/1000 MACs with MII/RMII/GMII interfaces
- 33/50 MHz PCI 2.3 host, initiator/target interface
- Dual Hi-speed USB 2.0 with integrated PHYs (support for host or device modes)
- Glueless interface to SLIC/SLACs and DAAs
- Support for up to 32-channel cross-connects with TDM to TDM and TDM to VoIP channel switching
- Flash/SRAM controller
- Hardware acceleration for IPSec (DES, 3DES, AES, MD5, SHA-1)
- Two external timer outputs
- Serial peripheral interface (SPI), Two-wire interface (TWI), Dual UARTs
- 802.1x authentication engine

Voice Processing

- Voice Coding G.711, G.729a, G.729ab, G.723.1

Software

The MSP7162 includes a turnkey-level software solution that integrates the MaxMT Linux SDK with dedicated GPON APIs. Applications developer can build high-performance, feature-rich gateways quickly and easily in an environment consisting of:

- Voice processing module (VPM) VoIP firmware suite
- GPON protocol stack
- GPON OMCI management stack

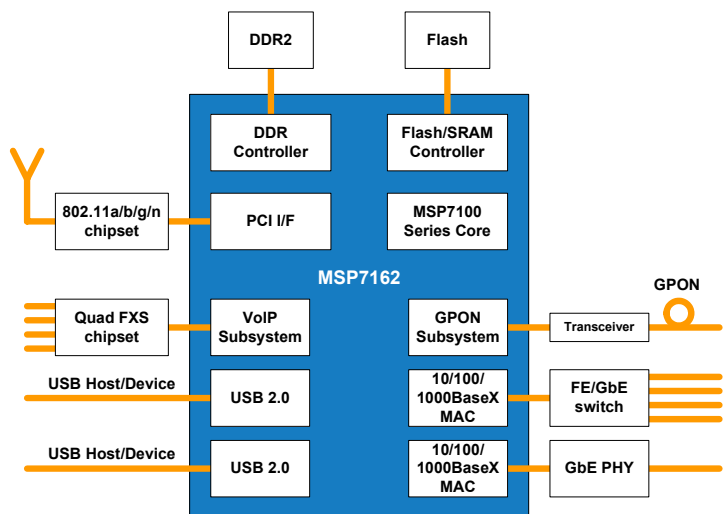
The MSP7162 and SDK are supported by standard tools from industry leading vendors as well as GNU development tools (compiler, debugger, EJTAG support, etc.)

For more details about the software development environment, refer to the MSP7100 Series SDK Product Brief.

Applications

- Residential multi-service FTTH GPON gateway
- SOHO GPON FTTH gateway
- SMB GPON FTTH gateway

MSP7162 GPON Residential Gateway



About PMC-Sierra

PMC-Sierra is a leading provider of broadband communications and storage semiconductors for metro, access, fiber to the home, wireless infrastructure, storage, laser printers, and fiber access gateway equipment. PMC-Sierra offers worldwide technical and sales support, including a network of offices throughout North America, Europe, Israel and Asia. The company is publicly traded on the NASDAQ Stock Market

Further Resources

PMC-Sierra Fiber-to-the-Home Solutions

<http://www.pmc-sierra.com/ftth-pon/>

Technical Documentation

www.pmc-sierra.com/products/DocFind.html

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