band passive optical networking layer termination device

MC92701
B-PON Solution

The next smart broadband solution

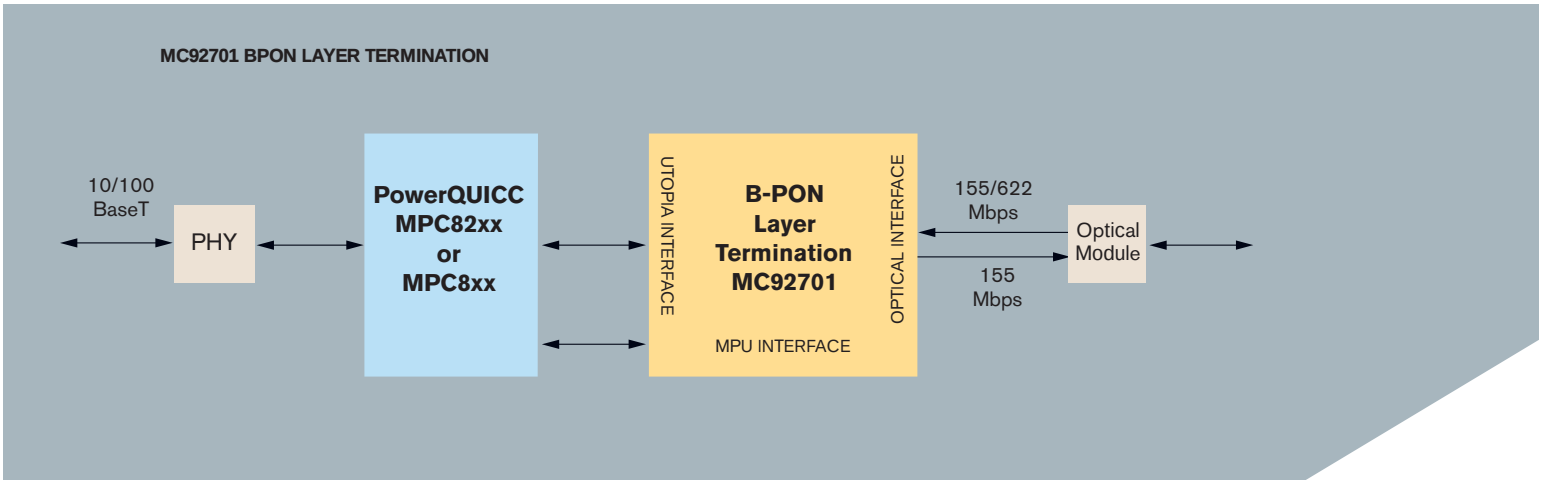
The promise of fiber to the premises (FTTx) is gaining momentum with the arrival of standards-based broadband passive optical networking (B-PON) solutions. Enabling more than a 10x increase in bandwidth (up to 622 Mbps downstream) over existing broadband technologies such as xDSL and broadband cable, telecommunication carriers can increasing their revenue streams by offering subscribers the “triple play” services of voice-video-data. By utilizing the point to multi-point architecture an overall reduction in the cost of deployment is also expected.

Addressing this growing market, Freescale introduces the first commercially available, industry-standard B-PON optical network termination (ONT) solution to be offered by a major semiconductor supplier. The new MC92701 is a B-PON layer termination device designed to work in tandem with Freescale’s PowerQUICC I™ and PowerQUICC II™ communication processors to provide a comprehensive system solution for ONT equipment.

MC92701 BPON layer termination device

The MC92701 is a B-PON layer termination device that fully complies with the ITU-T G.983 specifications. Adherence to this major industry standard enhances PON system interoperability, which in turn makes it easier to build and deploy FTTx networks. This device also supports dynamic bandwidth assignment (DBA). DBA is an innovative capability for enhancing quality of service in fiber-based broadband service and for enabling additional services that require bandwidth peaks beyond the traditional fixed-bandwidth allocations.

The MC92701 leverages Freescale’s broad ATM cell processing and mixed signal expertise, integrating system timing and clock data recovery on-chip to reduce bill of material and optical module costs.



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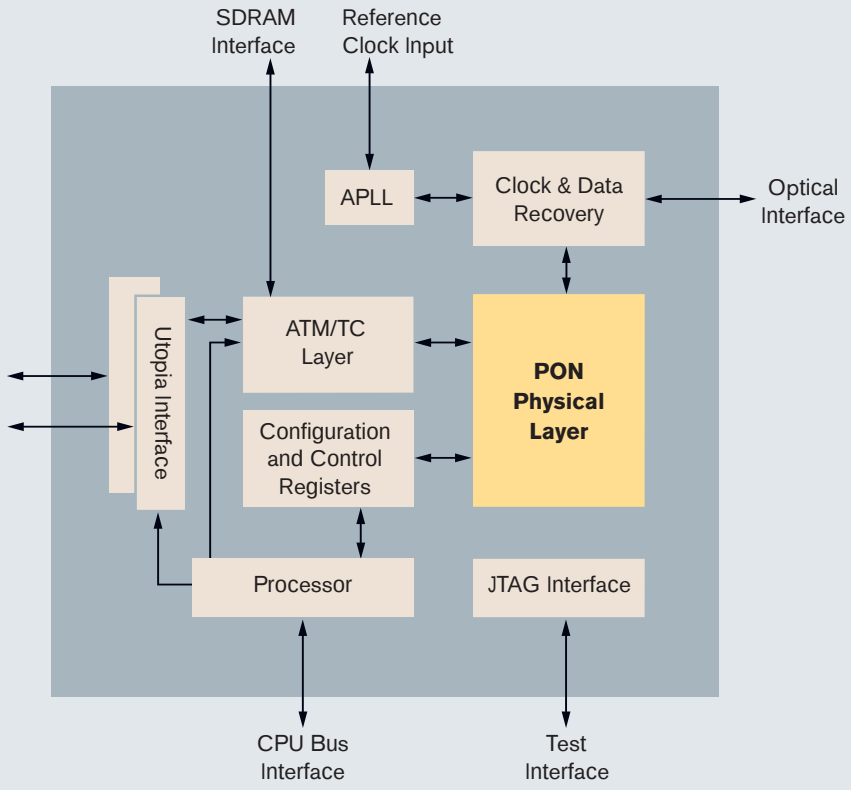
MC92701 BLOCK DIAGRAM



As high-speed file sharing, video conferencing, video-on-demand and other high-speed services increase, so too does the demand for higher bandwidth. Using B-PON results in a 10x increase in bandwidth over existing broadband technologies, such as xDSL and broadband cable. Telecommunication carriers can leverage the higher bandwidth of B-PON technology (up to 622 Mbps downstream) to increase their revenue streams and reduce the overall cost of deployment through point-to-multi-point architectures.

Key Features

> ITU-T G.983 compliant

> Downstream 622/155 Mbps

> Upstream 155 Mbps

> Dynamic bandwidth assignment – ITU-T
- G.983.4 and ITU-T G.983.7 compliant
- Backward compatible with non-DBA OLT
- Supports status report (SR) and non-status report (NSR)

> Supports four classes of quality of service (QoS)
- Constant bit rate (CBR)
- Variable bit rate (VBR)
- Guaranteed frame rate (GFR)
- Unspecified bit rate (UBR)

> Supports all types of traffic containers (T-CONT) (1/2/3/4/5)

> Supports early packet discard (EPD) and partial packet discard (PPD)

> ATM cell processing with full OAM support

> Microprocessor unit (MPU) bus interface – PowerQUICC I™ and PowerQUICC II™ compatible

> Debugging and monitoring features

> Supports two UTOPIA ports

> Design for test (JTAG IEEE 1149.1 compliant, full scan, full memory BIST)

> VDD = 3.3V +/- 0.3V 1.8V +/- 0.15 V

> 416 PBGA packages

> Operating temperature Tj from -40° to + 105°C.

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MC92701FS/D
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