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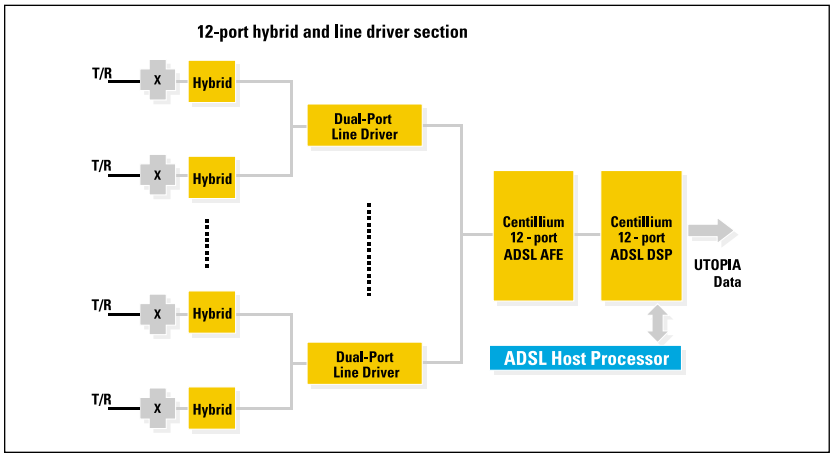
Maximus CT-L76SC12™

CO 12-port ADSL, ADSL+, ADSL++, ADSL2+ PHY

Overview

The Maximus CT-L76SC12 CO chipset is a complete, high-performance, 12-port solution for low-power, high-density, ATU-C line card applications. Building upon many years of ADSL deployment experience, Maximus is the sixth generation Centillium Communications ADSL CO chipset. With its low power and extensive feature set, it is the ideal engine for advanced, state-of-the-art line cards for DSLAM, MTU/MDU, DLC, and MSAP equipment. Maximus incorporates multiple interfaces and the Centillium eXtremeDSL™ technology, making it the solution of choice for high-speed, multi-service line card platforms catering to derived voice and video services applications.

Maximus 12-port ADSL block diagram



Consisting of a single 12-port digital processor and a single 12-port analog front-end, the Maximus chipset provides a low chip-count solution for high-density line cards. The CT-L76DC12 digital processor provides programmability and high performance for long-lasting line card solutions. The CT-L55AC12 analog front-end is a highly integrated device that significantly reduces the requirements on external components, resulting in a reduced system bill of materials. Its high-resolution analog-to-digital and digital-to-analog converter circuits provide the performance required for high data-rate applications.

Features

- Twelve-port ADSL modem chipset for high-density, low-power ATU-C applications based on two monolithic dies (digital and AFE package)
- Single ADSL chipset platform to enable data, telephony, and video applications over DSL
- Each port is capable of supporting up to 50Mbps downstream and up to 3Mbps upstream rates
- Intelligent mode selection enables CO and CPE train to the optimal performance mode
- Single ADSL chipset solution programmable for various annexes and regional global markets
- Supports ADSL2 feature set

Support for eXtremeDSL^{MAX} Technology

- Quad Spectrum (MAX-QS)
- Double Spectrum (MAX-DS)
- Extended Upstream (MAX-EU)
- High Bit Loading (MAX-HBL)
- Long Reach (MAX-LR)

Maximus chipset supports ADSL2 (recently standardized by ITU-T) including the new training and framing scheme. The device is backward compatible to existing deployed ADSL solutions. In addition, Maximus supports Centillium's innovative eXtremeDSL-max technology feature set which aims at maximizing the use of ADSL spectrum to deliver more bandwidth and extend the reach of ADSL service.

eXtremeDSL^{MAX} Feature Set	Remarks	Benefits
Quad Spectrum (MAX-QS)	• Enables delivery of ADSL downstream rates of up to 50Mbps using Quad Spectrum mode • Uses frequency spectrum from 138Khz to 3.75Mhz for downstream	• "Video-rates" with ADSL technology: Up to 50Mbps downstream for delivery of video type services for short loops • Service coverage area extension for premium services: Increase ADSL2plus reach for 24Mbps service by 700% (under 24 disturber noise conditions)
Double Spectrum (MAX-DS)	• Enables delivery of ADSL downstream rates of up to 24Mbps using Double Spectrum mode • Uses frequency spectrum from 138Khz to 2.2Mhz for downstream	• ADSL2plus technology: Up to 24Mbps downstream for video type services for short-medium loops • Service coverage area extension for premium services: Increase ADSL reach for 12Mbps service by 700% (under 24 disturber noise conditions)
Extended Upstream (MAX-EU)	• Enables delivery of ADSL upstream rates of up to 3Mbps using Extended Spectrum mode • Uses frequency spectrum from 25Khz to 276Khz for upstream	• Higher upstream rate for ADSL power users: Up to 3Mbps upstream for peer to peer applications
High Bit Loading (MAX-HBL)	• Enables ADSL DMT bit loading of more than 15 bits per tone	• Enables delivery of higher bit rate with increased bit loading: up to 20% increase in rates
Max Long Reach (MAX-LR)	• Enables delivery of ADSL service with reasonable rate up to 22,000 ft. (7,000 m)	• Extended ADSL service coverage for long-loop subscribers: 20% increase in ADSL reach

Standards

- ITU-T G.992.1 (G.dmt) Annexes A, B, C, H, I, J
- G.992.2 (G.lite) Annex A and C
- G.992.3 (ADSL2), Annex A (and C when ratified)
- G.992.5 (ADSL2 plus)
- G.994 (G.hs), G.997.1 (G.ploam)
- ANSI T1-413 Issue 2
- Support for long-reach solutions (READSL)

Highlights

- Leading-edge process technology for ultra-low power consumption & performance
- Simplified and very low cost hybrid BOM
- Intelligent power management feature set
- Utopia level 2 with up to 50Mhz speed
- IBC (In-band Control) feature which allows the control plane (i.e., initialization, programming, and control) of the chipset to be accessed via data path (i.e., Utopia)
- Flexible framing scheme compliant to ADSL2 specifications
- No external memory required
- Glueless interface to various host processors
- JTAG (IEEE 1149.1) boundary scan
- -40°C to +85°C operation

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Part Ordering Information

Product	Chipset	Function	Part Number	Package
Maximus	CT-L76SC12	Digital chip	CT-L76DC12	456-pin PBGA
		Analog chip	CT-L55AC12	324-ball PBGA
Note: The chipset must be ordered in sets. Orders of individual components are filled as chipset orders.				