MSP for VoIP Gateways with Integrated Secure Router

GENERAL

The MSP4000 belongs to a full family of Multi-Service Processors designed to meet the performance, QoS, and security needs of communications equipment used within the customer premise.

The MSP4000 is ideal for designing VoIP Gateways for small businesses, professional telecommuters, and branch offices. The MSP4000 is a highly affordable solution for up to eight ports of derived voice. This Multi-Service Processor provides a migration path from legacy IAD voice services using time division multiplexing over T1 services to next generation voice over broadband services.

The MSP4000 is also designed to meet the performance requirements of firewall applications and provides an additional Ethernet MAC for a dedicated DMZ port. An integrated encryption engine enables high-performance VPN services expected by telecommuters and remote offices.

To reduce time-to-market, PMC-Sierra offers comprehensive support for the MSP4000, including evaluation boards, software, application engineering support, training, and documentation that together accelerate the product development process. In addition, the MSP4000 supports Linux, VxWorks, or custom operating systems.

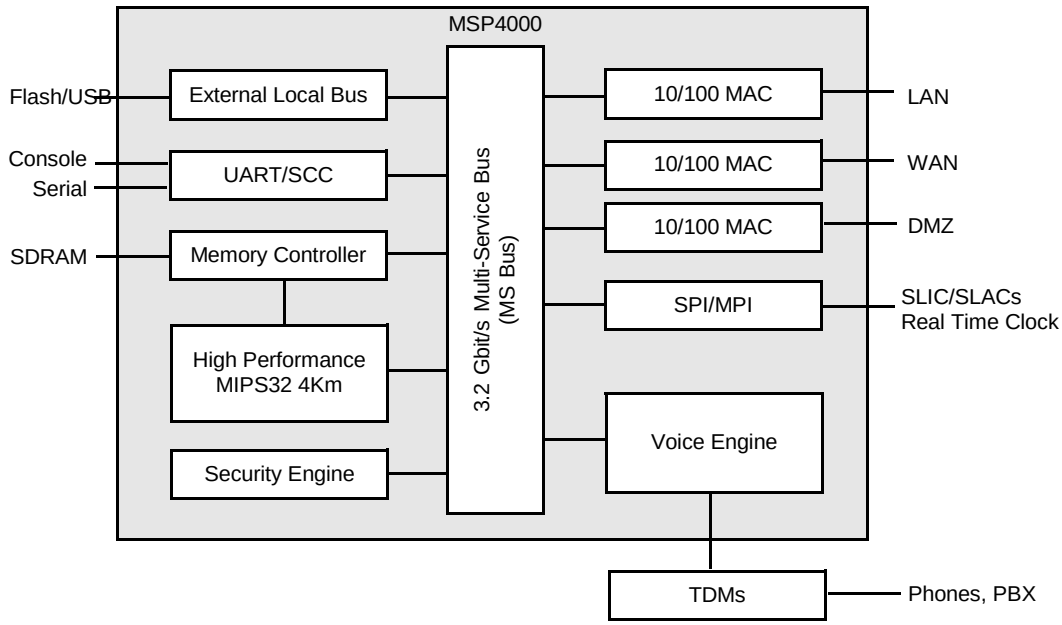
ADVANTAGES

- Single platform for both data and voice solutions
- Support for high performance VPNs
- Significant cost reduction through integration of multiple processors and discrete parts on a single chip
- Support for VxWorks and Linux

APPLICATIONS

- VoIP Gateway
- IADs

BLOCK DIAGRAM



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ELECTRICAL

- 350 pin PBGA
- Vcc 3.3V I/O, 1.8V core
- Power consumption 1.5W

SYSTEM PROCESSOR

- High performance MIPS32 4Km processor at 150 MHz
- 16 KB instruction cache, 16 KB data cache

ULTRAFAST MULTI-SERVICE BUS (MS BUS)

- Peak bandwidth of 3.2 Gbit/s
- True parallel processing
- Prioritized access

VOICE ENGINE

- LSI ZSP processor at 100 MHz
- 80 KB instruction, 64 KB data on-chip SRAM
- ADPCM hardware accelerator

TELEPHONY INTERFACE

- Dual TDM interfaces each capable of 128 full duplex channels
- Adaptive or WAN reference clocking
- Glueless interface to SLACs/T1/E1 framers
- Glueless interface to SPI/MPI

LAN INTERFACE

- Three Independent 10/100 Ethernet MACs
- Supports VLAN tagging and DMZ

SECURITY ENGINE

- Hardware accelerator for DES, 3DES, MD5, and SHA-1
- 32 Bit true random number generator
- IPSec compliant

SYSTEM CONTROL

- Eight interrupt inputs
- GPIOs
- MIPS timer, two system timers, and watchdog timer
- Block copy engine
- Flexible external local bus interface
  - Up to 12 MBit/s data throughput

MISCELLANEOUS INTERFACES

- UART
- SCC
- SPI/MPI
- Two-wire serial

MEMORY CONTROLLER

- Glueless interface to 128 MB of SDRAM
- Glueless interface to 32 MB of flash

VOICE PROCESSING

- G.711, G.726, G.729a/b, G.723.1
- G.168 echo cancellers
- G.711-Fax, fax/modem tone detection
- T.38 Fax relay
- DTMF generation/detection
- Call progress generation
- Caller ID
- Voice activity detection and comfort noise
- Channel cross-switch and conferencing
- Gain control
- Jitter buffer
- Adaptive clocking

SOFTWARE

- APIs: Voice engine, MACs, Security engine, and Block Copy
- Sample drivers to support SLIC/SLAC on the EVM board

CERTIFICATIONS

- NIST certification for security algorithms (FIPS 46-3, 81, and 180-1)

DEVELOPMENT TOOLS

- Support for Linux and VxWorks
- Evaluation boards

THIRD PARTY SUPPORT

- Security Applications
  - Ashley Laurent - Broadway Engine
  - INTOTO - iGateway
  - SofaWare Technologies - Safe@Office
- Voice Processing
  - GIPS - Global IP Sound - NetEq
  - RADVISION - H.323, SIP, MGCP
- EJTAG Debuggers
  - EPI - MAJIC probe
  - WindRiver - visionICE II

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