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NTDW60 Media Gateway Controller Card

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Introduction

The NTDW60 Media Gateway Controller (MGC) card provides a gateway controller for MG 1000E IP Media Gateways in a CS 1000E system. The MGC only functions as a gateway controller under control of a CS 1000E Call Server.

The MGC card has two expansion sites to accommodate Digital Signal Processor (DSP) daughterboards (DBs). The daughterboards are described in “NTDW62 and NTDW64 Media Gateway Controller Daughterboards” (page 943).

The MGC card occupies the system controller slot 0 in the Media Gateway chassis.

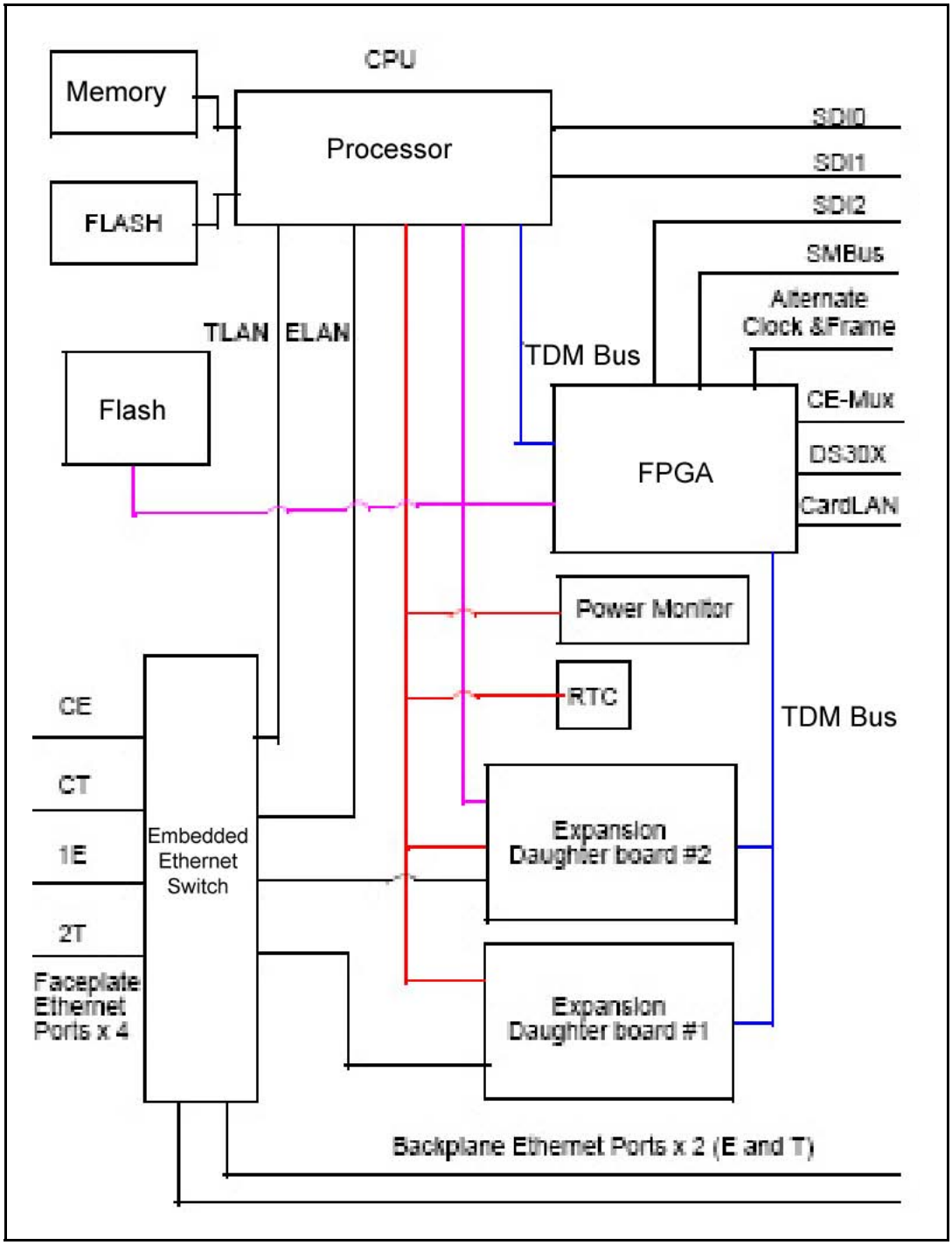
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The MGC card, without expansion daughterboards, includes the following components and features:

- Arm processor.
- 128 MB RAM.
- 4MB boot flash.
- Internal CompactFlash (CF) card mounted on the card. It appears to the software as a standard ATA hard drive.
- Embedded Ethernet switch.
- Six 100 BaseT Ethernet ports for connection to external networking equipment.
- Four character LED display on the faceplate.
- Two PCI Telephony Mezzanine Card form factor sites for system expansion.
- Real time clock (RTC).
- Backplane interface.
- Three serial data interface ports.

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Figure 261
MGC block diagram



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Processor

The processor combines RISC processors, DSP resources, SDRAM controller, and UARTs. The processor runs the application as well as providing tone and conference functions. It interfaces to the rest of the system using Ethernet.

Ethernet ports

External connections

Of the six external Ethernet ports, three are reserved for ELAN subnet connections and three for TLAN subnet connections. Two ELAN ports and two TLAN ports are accessed via RJ-45 connectors on the faceplate. The third ELAN and the third TLAN port are connected to the backplane.

The two ports connected to the backplane are available if an Option 11C cabinet or a CS 1000M Cabinet is used. The Option 11C cabinet requires a backplane adapter. The CS 1000M Cabinet does not require a backplane adapter.

Internal connections

Four Ethernet ports provide internal connections: one to each of the expansion daughterboards, and a TLAN subnet and an ELAN subnet connection to the processor.

Expansion daughterboards

Both expansion sites use the same PMC form factor and pin-out. However, one site is intended for a VoIP daughterboard only and provides Ethernet and TDM connectivity. It is not accessible from the faceplate and a PCI bus is not available. The other site provides a full PCI bus and faceplate accessibility in addition to Ethernet and TDM.

Backplane interface

The FPGA features include:

- Serial data interface port
- Time slot interchanger (TSIC)
- SSD X12/A10 signaling interface
- CE-Mux bus interface
- CardLan interface
- DS30x interface
- TDM bus for tones and conference
- System clock generation and system clock reference

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Serial data interface ports

The MGC has three serial data interface (SDI) ports. The ports can be used locally for debugging, or they can be configured in the CS 1000E Call Sever as system terminals. Only ports SDI 0 and SDI 1 can be used to access the installation menu during initial configuration of the MGC. SDI 2 is not available during bootup. Due to a limitation of the three port cable used, SDI 1 and SDI 2 do not use hardware flow control. Only SDI 0 has full modem support.

TTY default settings

The default tty settings for the SDI ports are:

- Baud rate: 9600.
- Data bit length: 8.
- Stop bit: 1.
- Parity: none.
- Flow control: none.

MGC serial port configuration change

If the serial ports are configured as SL1 terminals on the Call Server, the tty default settings can be changed in LD 17. Any values configured in LD 17 are downloaded to the MGC and override default values. The downloaded values persist over restarts and power outages. A system message is output when the serial port baud rate is changed.

Faceplate LED display

The faceplate on the MGC card has a four character LED display.

The diagnostic messages summarized in the following table are displayed on the faceplate.

Table 395
Faceplate display

Message	Description
BOOT	This is the first message displayed when the system becomes active.
POST	Power on self test. This message is displayed when the MGC is carrying out system tests during power up.
PASS	Power on self test pass.
EXXX	Error code. XXX is a numeric value. An error code is displayed if a serious system error is detected.

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LOAD	Application software is loading.
LLL:S	IPMG super loop and MGC shelf number. LLL is the superloop number. S is the shelf number. For example, 032:0, 120:1

Faceplate LED display

In a normal boot process the diagnostic messages would be displayed in the following order:

1. BOOT
2. POST
3. PASS
4. LOAD

If there is a fatal self test error during bootup, an error code appears and the PASS and LOAD messages are not displayed.

During normal operations the LED displays the IP Media Gateway (IPMG) superloop and MGC shelf number. If an error occurs the display cycles between the shelf number and the error code. Each item is displayed for 20 seconds.

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