



Enterprise System Control for TMS-3000 Systems

Introduction to ESCC Modules

Enterprise System Control Cards (ESCC) are TMS-3000 common cards which install in dedicated slots of the TMS-3000 Main Shelf to monitor and control activities of all co-located modules. ESCC also monitors the hardware and software operation of all common cards in the main shelf. If a hardware or software fault is detected by the ESCC, a fault sequence is initiated.

Data transfers between cards in a node are controlled by the ESCC. A 1- to 4-bit wide Fast Bus connects each of the sixteen cards in slots 1 through 16 of the TMS-3000 Main shelf. Data and control bits are transferred between these cards via the Fast Bus, at a rate of 16.896 MHz. The ESCC sequentially selects each ACC, ACM, CIC or CDA module to place data or control bits onto the Fast Bus as shown in *Figure 1*. The select process is determined by a Select RAM on the ESCC, and is set at the Controller in increments of N x 66 Kbps.

Table 1: ESCC Types

ESCC Module Type	GDC Part No.
ESCC-II (classic)	036M337-001
ESCC-Plus	036M337-011

Summary of ESCC Functions

- Permanently stores software for common cards in TMS-3000, TMS Compact and OCM-2000. Also stores configuration data for local TMS and MiniMux.
- Communicates with local TMS Controller.
- Communicates with other ESCCs in neighboring TMS nodes in the TMS network.
- Communicates with all common/channel cards in the node, including the redundant ESCC.
- Performs information transfer including common card program download during software upgrade procedures, as well as alarms, status, and configuration.
- Controls all customer data traffic between common cards within the node.
- In redundant applications, sends a command to the RCC to activate the standby card of any redundant pair in the local Main Shelf.
- Controls data flow between CICs or between one of the ACC, CDA or ACM modules via a 16.896 MHz bus. The bus contains common and channel card addressing, and data, control, and synchronization information.

Timing Features

The ESCC generates timing information for the local node and transfer of network timing between nodes. ESCC complies with Stratum 4 Enhanced Level Clocking specification as defined by AT&T Tech. Ref. 62411.

A reference clock is accepted from any common card in the node or the external timing port. ESCC phase locks to the reference and provides a stable timing output for use by all aggregates and channels. Additionally, a stable 512K output reference clock is supplied to let timing transfer to adjacent nodes or other equipment.

Performance Monitoring

ESCC/ACC cards allows the network manager to configure thresholds for alarms and traps that can be used in effective Performance Monitoring applications. Thresholds for alarms and traps are software configurable, and alarms are maskable.

ESCC-Plus Enhancements

There are two versions of the Enterprise System Control Card: the ESCC-II (classic) and the ESCC-Plus. Both versions have similar capabilities. ESCC-Plus has the addition of an onboard microprocessor that allows seamless integration of legacy and enhanced functions of the multiplexer. ESCC-Plus enhancements are as follows:

- compatible with all supported TMS-3000 classic common cards and channel cards.
- provides multiple Ethernet connections for management and control
- provides expanded clock rates for aggregates up to 4.096 Mbps as needed in satellite applications, etc.
- allows performance monitoring data integration for autonomous switching applications.
- allows the TMS-3000 to operate with all other Plus-series common and channel cards.
- employs confidence factor calculations to comparatively measure error rates of primary and alternate aggregate links and report link status.

TMS-3000 ESCC Modules

Data Sheet

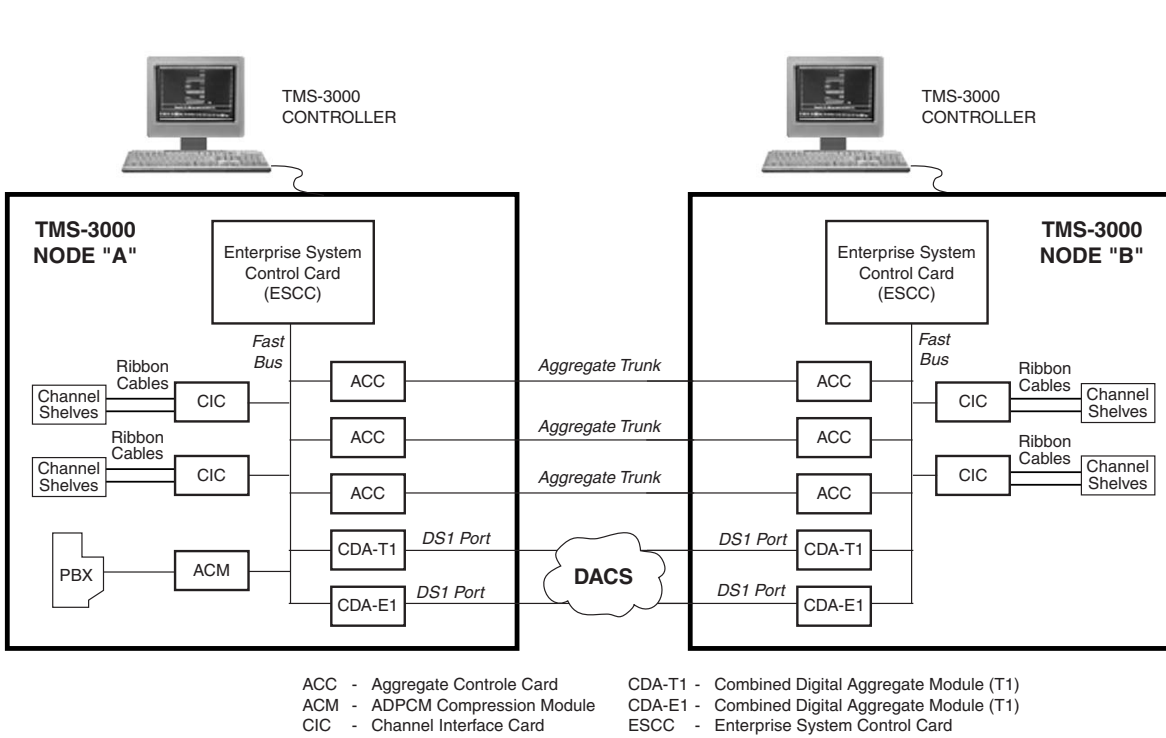


Figure 1: Data Path in a Typical TMS-3000 System

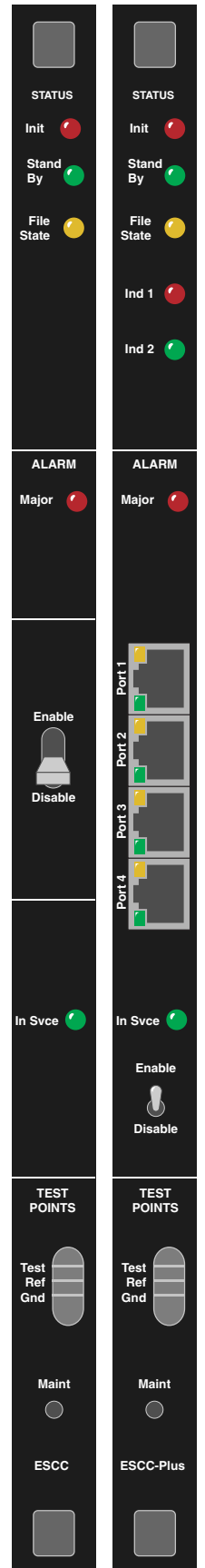


Figure 2:
 ESCC/ESCC-Plus
 Front Panels