

Aggregate Control Cards for TMS-3000 Systems

Introduction to ACC Module

The Aggregate Control Cards are TMS-3000 common cards which perform the multiplexing and demultiplexing of data. They also handle the control and support tasks of an individual TMS-3000 node.

There are two types of ACC cards: ACC (classic) and ACC-Plus. For both models of the ACC, data is derived from CIC, ACC, ACM, or CDA modules via the Common Equipment Bus, assembled into an aggregate bit stream, and transmitted across the aggregate trunk. Data received from the aggregate trunk is de-multiplexed and distributed to either ACC, ACM, CIC, or CDA modules.

ACC cards also perform the frame calculation from configuration data received from the ESCC via the Communication Bus. It buffers the data coming in on the 16.896 MHz Common Equipment Bus. This data conforms with the transmit framing ordered by the ESCC.

Table 1: ACC Types

ACC Module Type	GDC Part No.
ACC-II (classic)	036M313-006
ACC-Plus	036M313-016

Intended Use

TMS nodes are connected by an aggregate trunk that is terminated by an ACC or CDA module at each node. For a TMS or OCM aggregate trunk, the ACC has a 126 channel capacity. The ACC installs in the TMS-3000 Main Shelf and controls the transfer of data across an aggregate trunk to another node in the TMS network (a TMS-3000, a TMS Compact or a MiniMux TDM).

ACC-Plus

The classic ACC card and the ACC-Plus card have similar operational capabilities. The ACC-Plus is compatible with existing classic ACC cards so that both versions can operate in the network at the same time. In conjunction with the ESCC-Plus card, the ACC-Plus provides extended data rates, as listed in [Table 3](#).

Redundancy & Diversity

Two ACC modules installed in adjacent slots of the Main shelf (primary and standby) can provide ACC redundancy. If the primary module fails, service is switched to its standby. Performance statistics are transferred to the redundant ACC after a switch-over.

An ACC module can also support aggregate trunk diversity with two aggregate ports between it and the ACC at a remote node. Diversity requires two aggregate paths between the two nodes, designated the "A" trunk and the "B" trunk. Data is transmitted simultaneously across both paths, but received from only one port at a time. If a failure condition is detected in the received data, the ACC switches from the port currently in use and begins receiving data from the unused port. The switchover is controlled by the ACC.

Performance Monitoring

The ACC/ESCC card combination 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. Performance Monitoring statistics are displayed in selectable intervals: current, 15-min, cumulative, and 96 x15-minutes, and may be cleared by the user.

Aggregate Interface Options

A variety of aggregate interface cards, listed in the table below, can plug into the ACC or ACC-Plus to convert aggregate data to the signal standards required by a particular aggregate trunk.

Table 2: Aggregate Interface Plug-in Types

Aggregate intfc Plug in Type	GDC Part No.
EIA/TIA-232-E/ITU-T V.28 plug-in	036P041-001
ITU-T V.35 plug-in	036P042-001
EIA RS-422/423/MIL-STD-188/ITU-T V.10/V.11	036P043-001
T1/FT1 (for USA)	036P335-002
T1/DS0 (for Canada)	036P335-001
ITU-T G.703 2.048 Mbps 75-ohm	036P065-001
ITU-T G.703 2.048 Mbps 120-ohm	036P065-002
ITU-T G.704 2.048 MHz 75/120-ohm	036P281-001

TMS-3000 ACC Modules

Data Sheet

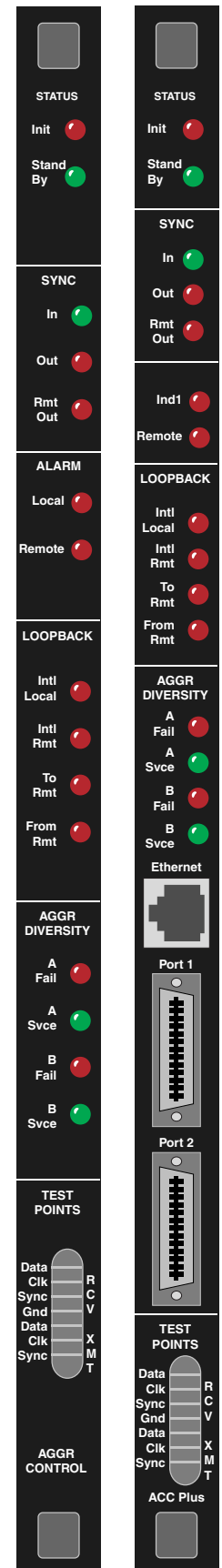
Table 3: Data Rates

Aggregate Rates for ACC and ACC-Plus Cards

2.400 K	4.800K	6.400K	7.200K	8.00K	9.600K	12.00K	14.00K	14.40K	16.00K
19.20K	24.00K	25.00K	28.00K	28.80K	32.00K	36.00K	38.40K	48.00K	50.00K
56.00K	57.60K	64.00K	72.00K	76.80K	96.00K	100.0K	112.0K	115.2K	128.0K
144.0K	153.6K	168.0K	192.0K	224.0K	230.4K	256.0K	280.0K	288.0K	320.0K
336.0K	384.0K	392.0K	448.0K	504.0K	512.0K	560.0K	576.0K	616.0K	640.0K
672.0K	704.0K	728.0K	768.0K	784.0K	832.0K	840.0K	896.0K	952.0K	960.0K
1.008M	1.024M	1.064M	1.088M	1.120M	1.152M	1.176M	1.216M	1.232M	1.280M
1.288M	1.344M	1.400M	1.408M	1.456M	1.472M	1.512M	1.528M	1.536M	1.568M
1.544M	1.600M	1.624M	1.664M	1.680M	1.728M	1.736M	1.792M	1.848M	1.856M
1.904M	1.920M	1.960M	1.984M	2.048M					

Additional Aggregate Rates (ACC-Plus Cards only)

2.112M	2.176M	2.240M	2.304M	2.368M	2.432M	2.496M	2.560M	2.624M	2.688M
2.752M	2.816M	2.880M	2.944M	3.008M	3.072M	3.136M	3.200M	3.264M	3.328M
3.392M	3.456M	3.520M	3.584M	3.648M	3.712M	3.776M	3.840M	3.904M	3.968M
4.032M	4.096M	4.160M	4.224M						



ACC/ACC-Plus
Front Panels

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