SLC® Series 5 Carrier System

AUA111 (COT/RT) Transmit/Receive Unit — 5SCSTG0

This data sheet describes the AUA111 transmit/receive unit (TRU) (COMCODE 106016538) and is intended for the end-user of the unit. The AUA111 TRU is used in the Feature Package I (FPI) remote terminal (RT) of *SLC*® Series 5 Carrier Systems. The AUA111 TRU provides the interface between two digroups of channel units (for example, 24 AUA58B dual channel POTS channel units) and the digital interface [one or two DS1 line interface units (LIUs)] and one line switch unit (LSU). The AUA111 TRU also provides an interface to the AUA18 digital test unit - left (DTU-L)/AUA19 digital test unit - right (DTU-R) if it is installed in the bank.

Table 1 lists the RT applications using the AUA111 TRU. Figure 1 is a functional block diagram of the unit, and Figure 2 shows the faceplate.

The AUA111 TRU is used in all FPI RT configurations. For Mode 1 applications, the TRU interfaces with two LIUs for transmission to/from the DS1 lines. For Mode 2 applications, the TRU concentrates a dual digroup (48 channels) of channel units (CUs) to a single DS1 facility serving 24 channels using one LIU. The AUA111 TRU provides the D1D channel polling sequence. The AUA111 TRU synchronizes all the plug-ins serving a 48-channel shelf of the *SLC* Series 5 channel bank.

In the transmit direction, the AUA111 TRU sends the channel polling signals to the CUs, gets the transmit pulse code modulation (PCM) bit stream for the CUs in each digroup, and time division multiplexes PCM data samples from the

channel units into a serial 4.096 Mb/s format for each digroup. The AUA111 TRU then feeds the formatted signal to two LIUs (Mode 1) or one LIU (Mode 2) and to the LSU.

In the receive direction, the TRU receives 4.096 Mb/s PCM from one (Mode 2) or two (Mode 1) LIUs and the LSU. The TRU selects between these inputs based on instructions from the bank control unit (BCU). The TRU distributes the two PCM formatted signals to the two digroups under its control. The timing between the transmit and receive PCM at the CUs is such that only one channel polling control signal is required for both PCM bit streams.

The AUA111 TRU also accepts and inserts 4 kb/s serial data link information from and to the BCU using the transmit and receive data link leads and the TRU service request lead. While the TRU is used on both the AB and CD shelves, the data link in Mode 1 is only transmitted in the A digroup. In both Mode 1 and Mode 2, the TRU extracts and inserts the data link from and to the A digroup LIU and sends it to the BCU. In Mode 2, the TRU also extracts and inserts concentration information into a data link in both the A and C digroups. In this mode, the A digroup LIU gets data link information from both the BCU and the TRU microcomputer. The C digroup gets data link information only from the TRU microcomputer. This provides both A and C digroup data links in Mode 2.

In Mode 1 operation at the FPI RT, the TRU receives three 4 kHz clocks — one from each of the two LIUs with which it works and one from the LSU. For Mode 2 operation at the RT, the TRU receives two 4 kHz clocks, one from the LIU and the other from the LSU. The TRU automatically selects one of these clocks as a reference and frequency locks its voltage controlled oscillator (VCXO) to that reference. The VCXO is part of a phase-locked loop (PLL) configuration that synchronizes the TRU to the selected 4 kHz clock. The VCXO generates a 16.384 MHz clock which is counted down to provide 8.192 MHz for use by the time slot interchanger (TSI) and formatter function, and 4.096 MHz for driving other bit stream processing functions on the TRU as well as the system backplane.

The local digital switch to which the FPI RT is connected makes CU time slot assignments. Time slot assignments are transmitted to the RT TRU using the concentrator field of the A and C digroup data links so that the corresponding time slot assignments can be made at the RT. Channels from the AB shelf are assigned a time slot on the A digroup. Channels from the CD shelf are assigned a time slot on the C digroup. In Mode 1, direct maps of time slots are made between the corresponding shelf time slots and the two LIU digroup time slots using the D1D counting sequence.

At the FPI RT, the AUA111 TRU examines the signaling bits associated with each RT channel unit to determine on- or off-hook activity. Activity messages are sent to the central office over the concentration field of the data link and time slot assignments or deassignments are made accordingly.

The LED indicators located on the faceplate of the AUA111 TRU provide the following functions.

FAIL (Red LED) — When lighted, this LED indicates that a failure has been located on this TRU.

SPL (Yellow LED) — When lighted (Mode 2), this LED indicates that a special services channel unit has been plugged into an incorrect slot.

ON PROT (Two Yellow LEDs) — When lighted, these LEDs indicate that the digroup to which the associated arrow is pointing is currently being served by the protection line.

Table 1. AUA111 TRU FPI RT Applications

BCU	LIU		
Mode 1/Mode 2	Mode 1	Mode 2	Mode 4
MC97775A1	AUA161, AUA162	AUA161, AUA162	AUA161, AUA163

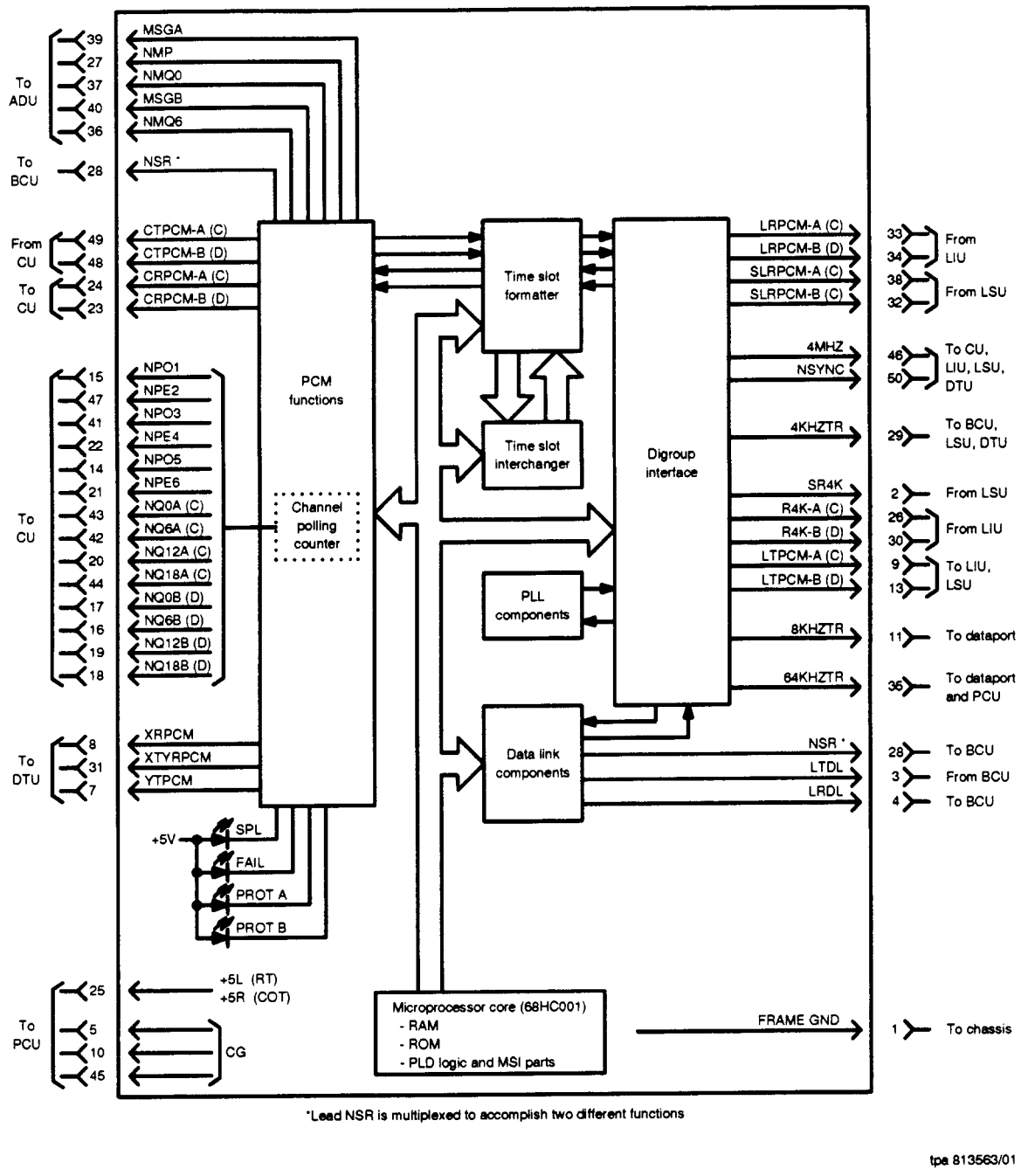

Figure 1. AUA111 TRU Block Diagram

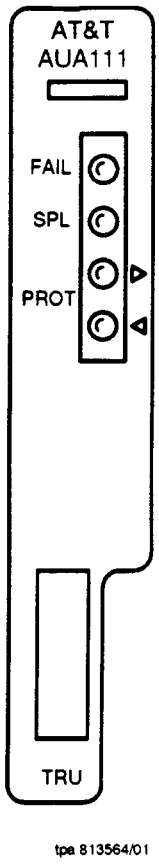

Figure 2. AUA111 TRU Faceplate

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