GENERAL DATACOMM

Xedge AVM NTMs

Xedge Node Timing Modules for T1 and E1 Applications

INTRODUCTION

The Node Timing Module (NTM) is a timing controller that distributes a clean, resilient timing reference to each line interface in the node. There are two versions of the NTM:

- NTM-DS1 (for DS1 external timing)
- NTM-E1 (for E1-GPS external timing)

The NTM operates in conjunction with enhanced clocking LIMs to increase the options available for system timing in the node and the network.

With one or two configured NTMs, the switch's 20 PPM oscillator is disabled and any Xedge enhanced LIM can provide node timing. In the event of loss of timing at the configured source, the NTM's Stratum 3 Oscillator can provide the Reference Clock for the switch ot the entire ATM network.

Source Timing

The NTM generates transmit timing for a variety of LIMs from a LIM local oscillator or from a LIM's received DS1, DS3, E1, E3 and OC-3c/STM-1 line timing (Primary and Secondary timing references designated by the user).

The NTM may derive its operating frequency from any of the line interfaces listed above. This assumes network timing is being supplied from a clock source attached somewhere else within the ATM network. There are no restrictions on the line interfaces that can receive network timing.

Stratum-3 Oscillator

The NTM provides a high stability Stratum 3 Oscillator which can be configured to operate in one of the following modes:

- Internal Mode: Stratum 3 clock functions as a free-running timing reference source.
- Line Mode: Phase-locked loop locks to a line reference (Pri/Sec Line Ref).
- External Mode: Phase-locked loop locks to an external reference timing source (Pri/Sec).

KEY FEATURES

- Available in a T1 or E1 version
- Installs in dedicated slots at the rear panel of Xedge 6160, 6280, 6640 or 6645 systems.
- Provide increased control options for system timing.
- Employs the "enhanced clocking" Xedge LIMs that have software selectable data clocks
- NTM-E1 utilizes the timing inteface described in ITU-T G.703 Table 10.
- Nodes equipped with two NTMs are capable of fully redundant system timing and synchronization.

NTM Timing Fallback

When provisioned with the NTM, a failure of the primary timing source will cause the switch to fall back to the secondary timing source, with the option of reverting or not reverting to the more desirable timing source.

If both primary and secondary sources fail, the switch falls back to a free-running 20 parts-per-million internal oscillator. Fallback timing is based on the following factors:

- the number of NTMs in the node (1 or 2)
- the configured Stratum 3 mode of operation (External or Line)

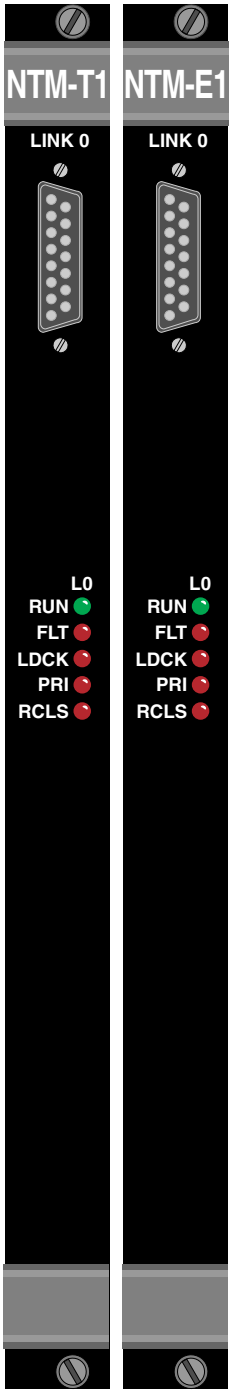

***Figure 1**: Front Panel Features of Xedge NTM-T1 or NTM-E1*

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