

E1 UDT base configuration short-form data

General

The programmable hardware block performs AAL1 circuit emulation inter-working functions for unstructured data transfer (UDT). This is the first sub-system component available using the Phystream communications processing architecture, which is scaleable, configurable and fully customizable for a range of data access applications.

Numbers of channels can be scaled up to higher density applications or scaled down for cost effective low bandwidth designs. The function is configurable to enable maximum flexibility in protocol operation and customizable to specification for any interfacing requirement.

Features

- 63 x E1.
- Single external 32-bit memory device.
- Flexible memory allocation for CDV buffering.
 - Supports zero CDVT for low latency applications.
 - Maximum CDV buffer size limited only by external memory capacity.
- Utopia Level 1 interface.
- TDM interface to customer specification.
- Generic 32-bit processor interface.
- Flexible channel identification (e.g. VPI/VCI, routing tag, etc.)
- Fast sequence number processing.
- Low latency access for statistics.
- Compliant with ITU I.363.1, ATMF af-phy-0017.000 Utopia Level 1 v2.01, af-vtoa-0078.000 v2.0 CES Interoperability Spec.
- Flexible clocking strategies
 - Single global clock
 - Individual interface clocks

Minimum Requirements

FPGA – XC2V1000-4
32 bit wide, 64Mbit SDRAM
System clock frequency: 25MHz (min)

(Device supporting 63xE1 UDT channels)

Options

- AAL0 (null AAL) mode on a per tributary basis
- Partial cell fill for delay sensitive applications
- Asynchronous timing support (SRTS and/or adaptive)
- Adaptive and Robust sequence number processing algorithms
- UTOPIA Level 2 interface af-phy-0039.000
- System and line loop-back on a connection basis
- PRBS test generation/detection
- Forward compatibility with Phystream IWF portfolio

Applications

UDT is the type of circuit emulation service (CES) most suitable for carrying indeterminate data formats over an ATM infrastructure. This is applicable to narrowband voice, particularly if the signalling structure is non-standard or the pipe is fully utilised as is the case for backhaul of wireless traffic from base-stations or the transport of trunk circuits between narrowband switches and packet gateway equipment. UDT is also used for provision of private line over ATM where protocol independent operation is essential.

The Phystream UDT package is designed to accommodate all these applications with unprecedented efficiency allowing state-of-the-art density of channelization when used in conjunction with available 3rd party framing devices, as shown:

