AVAYA

Product Bulletin:

Date: Feb 12, 2011

Universal Digital Trunk UDT – T1 Release

Revision History

Date	Revision #	Summary of Changes
15 February, 2011	Original Bulletin	This is the original bulletin

Introduction

Avaya is pleased to announce the General Availability of UDT as a T1 PRI and DTI trunk for use with CS1000 systems. The NTDW79AAE5 is a single E1/T1 card that replaces existing digital trunks and associated clock controllers.

This card was originally introduced for use in E1 countries in early 2010. See bulletin 2010_0009. It is now being released for T1 applications. A UDT T1 Installation Highlights sheet highlighting the installation differences between the TMDI and UDT card will be inserted in the first month's cards shipped. This sheet can be found in Appendix 1 below. As well a section from the ISDN installation guide covering T1 application of the UDT follows Appendix 1.

The NTDW79AAE5 PRI card and NTDW12AAE5 clock controller are being released immediately in the USA and Canada in order to address shortages of NTAK20 clock controllers and NTRB21TMDI cards.

Product Description / Solution Overview

This bulletin introduces NTDW79AAE5 - UDT E1/T1 (Universal Digital Trunk), a single slot TDM E1/T1 card and NTDW12AAE5 – a new UDT CC (Universal Clock Controller) daughter board.

This card is intended for CS1000E systems and is backwards compatible to small (e.g. Option11C, Option 11C mini, CS1000S) systems on all software releases as well.

The new card is based on technology developed for the MG 1000E PRI Gateway and can be used in any one of the following modes:
- DTI 1.5/DTI 2.0;
- PRI 1.5/PRI 2.0;
- DPNSS/DASS2;
- B-channel

The DDCH/DCHI functionality is implemented onboard.

The new card consolidates existing digital trunk cards which are close to their end of life, into a new, single technology, RoHS compliant card. Therefore, the following cards may be Manufacture Discountinued shortly after the introduction of the new UDT & CC cards on a market by market basis: NTAK79, NTAK10, NTBK50, NTAK20, NTAK93, NTAK09, NTRB21. This addresses component obsolescence issues associated with these cards. The NTBK51 will continue to be used in large systems.

Customer Value

- Integrates all existingT1/E1, DTI/DTI2, PRI/PRI2, DPNSS1/DASS2 and B-channels functionality;
- Facilitates retirement of NTAK79, NTAK09, NTAK10, NTBK50, NTRB21;
- Includes the functionality of the following Dchannel daughter boards: NTAK93, NTBK51;
- Introduces the NTDW12AAE5 clock controller daughterboard, which replaces both the NTAK20ADE5 stratum 3 and NTAK20BDE5 stratum 4 clock controller daughterboards. **Note: the NTDW12AAE5 daughterboard can only be mounted on the NTDW79 PRI card. It cannot be mounted on previous T1 or E1 digital trunk cards.**
- UDT E1/T1 (NTDW79AAE5) is software transparent. Therefore it can be used in the installed base for repairs and upgrades;
- UDT E1/T1 is software transparent, with the following main characteristics:
  - Provides all DTI, DTI2, PRI, PRI2, DPNSS1, DASS2 functionality; Using a new universal CC DB (NTDW12AAE5);
  - On board DDCH/DCHI functionality;
  - Highly secured- No Telnet, HTTP and FTP servers.
  - Secure and simple UDT E1/T1 firmware upgrade process from Call Server (PSDL)
- UDT E1/T1 has enhanced trouble shooting via CLI interface;
- RoHS and CRoHS compliant.

Software and Hardware Guidelines

The new IPE hardware component part numbers introduced by UDT E1/T1 card are:

- NTDW79AAE5 - 1 slot size E1/T1 card;
- NTDW12AAE5 - 1 Universal Clock Controller daughterboard.

UDT E1/T1 general view

Clock Controller d'board   T1/E1 Trunk card   DIP switch

UDT E1/T1 in CS 1000E system

Applicable Systems

- CS 1000M Cabinet   Yes
- Meridian 1 PBX 11C Cabinet   Yes
- CS 1000S   Yes
- CS 1000E   Yes
- CS 1000M Chassis   (MINI)   Yes
- Meridian 1 PBX 11C Chassis   (MINI)   Yes
- MG 1000B   Yes

The new UDT E1/T1 card is transparent to the software and will work with the call server CS1000E systems or with SSC based systems including Mg1000T.

MGC Firmware should be at MGCCAP01 or higher.

Engineering Considerations

- UDT E1/T1 card mode selection (E1/T1) is controlled by a DIP switch 1 on the UDT E1/T1 card. (DIP switch 2 is not used at this time)
- UDT E1/T1 default modes: E1- (PRI2, CRC4-no); T1- (PRI, ESF, B8ZS, FDL, LBO- 0-133 ft). RS232 port connectivity is not required when installing the UDT E1/T1 in default mode.
- UDT E1/T1 configuration via RS232 port is required only for non default mode setup (DTI2/DTI/DDCS/BCH).
- The new UDT CC daughter board (NTDW12AAE5) can only be mounted on the new UDT E1/T1 card (NTDW79AAE5) but can be the clock reference for other cards in the chassis.
- The new UDT E1/T1 card cannot have an NTAK20 CC DB installed on it, but can use it as a clock reference if mounted on another card in the chassis.
- 75ohm BNC connectors are not provided on this card. (75ohm impedance can be used by converting the UDT E1/T1 120ohm impedance using a proper converter- e.g. Balun N0154213)
- The UDT E1/T1 card is installed as a PRI/PRI2/DTI/DTI2/DPNSS/DASS card. **Do not configure UDT E1/T1 as TMDI card!** **T1 configuration follows at the end of this bulletin.**
- UDT E1/T1 secure firmware download is supported only for CS 1000E and CS 1000B system (MGC based only).
- UDT E1/T1 secure firmware download is supported only from X21 Rls. 5.5 and up.

- X21 Call Server commands introduced/changed to support the UDT E1/T1 secure firmware download (overlay 143, 60, 22) implemented in Rls. 5.5 and 6.0 by an X21 SW patch- MPLR29065_1
- UDT E1/T1 loadware file is part of Call Server PSDL software- implemented in X21 releases 5.5 and 6.0 by an X21 loadware patch.

Quotation and Ordering

The UDT as a T1 digital trunk is available for quotation via the Enterprise Configuration Tool Version 9.1, available March 2011. Order Management is currently accepting orders for UDT. Product Engineering Codes for UDT are shown below:

Order Code	Description
NTDW79AAE5	Universal Digital Trunk E1/T1 Card
NTDW12AAE5	Universal Digital Trunk Clock Controller Card

Documentation

The following NTPs have been updated to include UDT content:

NTP Number	Title
NN43001-311	Circuit Card Reference
NN43001-711	Software Input Output Reference
NN43001-712	Alarms References System Mess.
NN43001-717	Maintenance_Performance_Mgmt_PRI_MAINT.
NN43001-301*	ISDN_Primary_Rate_Interface_Installation_Commissioning

* NT43001-301 chapter 16 being modified to include instructions found at the end of this bulletin after Appendix 1. See below.

Appendix 1
<u>UDT T1 – Installation Highlights</u>

The UDT is being released for T1 installations; this note is being included to describe the differences between the existing TMDI installation and the UDT when used for T1.

The following list describes some highlights for UDT installation. For full details see NTP NN43001-301 ISDN Primary Rate Interface Installation and Commissioning

The UDT card in T1 mode, simulates from X21 Software perspective NTAK09 card with optional NTBK51 card;

Thus the prompt TMDI in X21 must be set to NO

<u>Default setup</u>
- When the E1/T1 DIP switch on the UDT is set as T1 , the following default parameters apply : (Note: Switch 2 spare on/off is not required and should be left in position shipped)
  - o Usage- PRI
  - o Frame Mode- ESF
  - o Line Code- B8ZS
  - o Yellow Alarm- FDL
  - o LBO- 0-133 FT.

- On PRI configuration when DCH is required, MSDL and DCH should be the configuration choices (the same as done with DDCH – NTBK51 DB).

<u>Non default setup.</u>

- E1 T1 switch must be set as T1.

- For non default mode T1 setting, (like DTI interface) and any parameter that is different than the default mode, an RS232 cable must be connected to the card.

- The CLI: /udtadmin/E1T1Settings command will set the non default parameters.

<u>Clock Controller:</u>

- NTDW12AAE5 is used with the NTDW79AAE5 if a clock controller is needed

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Universal Digital Trunk card commissioning

Contents

This section contains information about the following topics:

Configure the UDT card using the UDT card Command Line Interface (CLI). The RS232 port must be connected to a terminal. For more information about the UDT card CLI, see Software Input Output Reference — Maintenance (NN43001-711).

UDT card configuration as 1.5 Mb PRI (T1)

Task summary list

LD 17 configure PRI loop and D-channel interface

Table 1:
PRI Loop configuration

PROMPT	RESPONSE	DESCRIPTION
REQ	CHG	Change existing data.

Table 1:
PRI Loop configuration

PROMPT	RESPONSE	DESCRIPTION
TYPE	CEQU	Common Equipment
CEQU	YES	Changes to Common Equipment
...	...	
DLOP	xx	The PRI digital loop
MG_CARD	supl sh card	The physical card for the PRI loop in the associated IPMG
...	...	
MODE	PRI	Mode of operation
TMDI	**NO**	Must be configure as **NO**
...	...	
YALM	xxx	Yellow alarm method
TRSH	0 - 15	Threshold
...	...	

Table 2:
DCH Configuration

PROMPT	RESPONSE	DESCRIPTION
REQ	CHG	Change existing data.
TYPE	ADAN	Action Device And Number
ADAN	NEW DCH xx	Add a primary D-Channel
CTYP	MSDL	D-Channel configuration on MSDL card
MG_CARD	supl sh card	In format of Superloop, Shelf, Card

Table 2:
DCH Configuration

PROMPT	RESPONSE	DESCRIPTION
PORT	1	Port nust be set to 1
USR	PRI	D-Channel is used for ISDN PRI only
IFC	xx	Interface type for D-Channel
DCHL	xx	PRI loop number
...	...	
SIDE	(USR) NET	The system is network/user side
...	...	

LD 15 configure PRI customer

Table 3:
PRI customer configuration

PROMPT	RESPONSE	DESCRIPTION
REQ	NEW CHG	Add new data Change existing data.
TYPE	NET	Networking data
CUST	xx	Customer number
...	...	
ISDN	YES	Customer is equipped with ISDN
...	...	

LD 16 configure ISDN service route

Table 4:
ISDN service route configuration

PROMPT	RESPONSE	DESCRIPTION
REQ	NEW	Add new data
TYPE	RDB	Route Data Block
CUST	xx	Customer number
ROUT	xx	Route number
...	...	
TKTP	xxx	Trunk type
DTRK	YES	Digital trunk route
DGTP	PRI	1.5 Mb PRI
IFC	xxx	Interface type
...	...	
ISDN	YES	ISDN option
MODE	PRA	Route used for PRA only
...	...	

LD 14 configure service channels and PRI trunks

Table 5:
Service channels and PRI trunks configuration

PROMPT	RESPONSE	DESCRIPTION
REQ	NEW	Add new data
When assigning several members at once use the multiple create command NEW XX

Table 5:
Service channels and PRI trunks configuration

PROMPT	RESPONSE	DESCRIPTION
TYPE	xxx	Trunk type
TN	l ch	Loop and channel of digital trunk
DES	xxx	Designator field for trunk
PDCA	(1) - 16	PAD category table number
PCML	A MU	Pulse Code Modulation Law A = A-law MU = u-law
...	...	
RTMB	rt mm	Route number and Member number
...	...	
TGAR	0 - (1) - 31	Trunk Group Access Restriction
...	...	
CLS	aaaa	Class of Service
...	...	

LD 73 configure system timers and clock controller

Table 6:
System timers and clock controller configuration

PROMPT	RESPONSE	DESCRIPTION
REQ	NEW CHG	Add new data Change existing data
TYPE	DDB	Digital Data Block

Table 6:
System timers and clock controller configuration

PROMPT	RESPONSE	DESCRIPTION
MGCLK	sl s c	Superloop, shelf and card number of the PRI providing the Primary Clock Reference
PREF	card	Card number of the PRI providing the Primary Clock Reference
SREF	card	Card number of the PRI providing the Secondary Clock Reference
...	...	
MGCLK	sl s c	Superloop, shelf and card number of the PRI providing the Primary Clock Reference
PREF	card	Card number of the PRI providing the Primary Clock Reference
SREF	card	Card number of the PRI providing the Secondary Clock Reference
...	...	
TRSH	0 - 15	Set the PRI threshold (configure the thershold in LD 17 upon config-uring the PRI loop)
RALM	1 - (3) - 128	Yellow (remote) alarm 24 hours threshold (i.e. number of remote alarm clear signals received in 24 hours)
...	...	

UDT card configuration as 1.5 Mb DTI (T1)

Task summary list

- "LD 17 configure DTI loop" (page 7)

LD 17 configure DTI loop

Table 7:
DTI loop configuration

PROMPT	RESPONSE	DESCRIPTION
REQ	CHG	Change existing data.
TYPE	CEQU	Common Equipment
CEQU	YES	Changes to Common Equipment
...	...	
DLOP	xx	The DTI digital loop
MG_CARD	supl sh card	The physical card for the DTI loop in the associated IPMG
...	...	
MODE	TRK	Mode of operation
TMDI	**NO**	Must be configure as **NO**
...	...	
YALM	xxx	Yellow alarm method
TRSH	0 - 15	Threshold
...	...	

LD 16 configure 1.5 Mb DTI trunk route

Table 8:
1.5 Mb DTI trunk route configuration

PROMPT	RESPONSE	DESCRIPTION
REQ	NEW	Add new data
TYPE	RDB	Route Data Block
CUST	xx	Customer number
ROUT	xx	Route number
...	...	
TKTP	xxx	Trunk type
DTRK	YES	Digital trunk route
DGTP	DTI	1.5 Mb DTI
...	...	

LD 14 configure service channels and 1.5 Mb DTI trunks

Table 9:
Service channels and 1.5 Mb DTI trunks configuration

PROMPT	RESPONSE	DESCRIPTION
REQ	NEW CHG	Add new data / Change existing data. When assigning several members at once use the multiple create command NEW XX
TYPE	xxx	Trunk type
TN	l ch	Loop and channel of digital trunk
DES	xxx	Designator field for trunk
PDCA	(1) - 16	PAD category table number

Table 9:
Service channels and 1.5 Mb DTI trunks configuration

PROMPT	RESPONSE	DESCRIPTION
PCML	A MU	Pulse Code Modulation Law A = A-law MU = u-law
...	...	
RTMB	rt mm	Route number and Member number
...	...	
TGAR	0 - (1) - 31	Trunk Group Access Restriction
SIGL	xxx	Level 3 signaling
STRI	xxx	Start arrangement Incoming
STRO	xxx	Start arrangement outgoing
SUPN	(NO) YES	Answer and disconnect supervision required
...	...	
CLS	DIP DIPF DTN MFC	Dial pulse Dial pulse digit collection Digitone Multi Frequency Compelled
...	...	

LD 73 configure clock reference

Table 10:
System timers and clock controller configuration

PROMPT	RESPONSE	DESCRIPTION
REQ	NEW CHG	Add new data Change existing data
TYPE	DDB	Digital Data Block
MGCLK	sl s c	Superloop, shelf and card number of the PRI providing the Primary Clock Reference
PREF	card	Card number of the PRI providing the Primary Clock Reference
SREF	card	Card number of the PRI providing the Secondary Clock Reference
...	...	
MGCLK	sl s c	Superloop, shelf and card number of the PRI providing the Primary Clock Reference
PREF	card	Card number of the PRI providing the Primary Clock Reference
SREF	card	Card number of the PRI providing the Secondary Clock Reference
...	...	
TRSH	0 - 15	Set the PRI threshold (configure the thershold in LD 17 upon config- uring the PRI loop)
RALM	1 - (3) - 128	Yellow (remote) alarm 24 hours threshold (i.e. number of remote alarm clear signals received in 24 hours)
...	...	