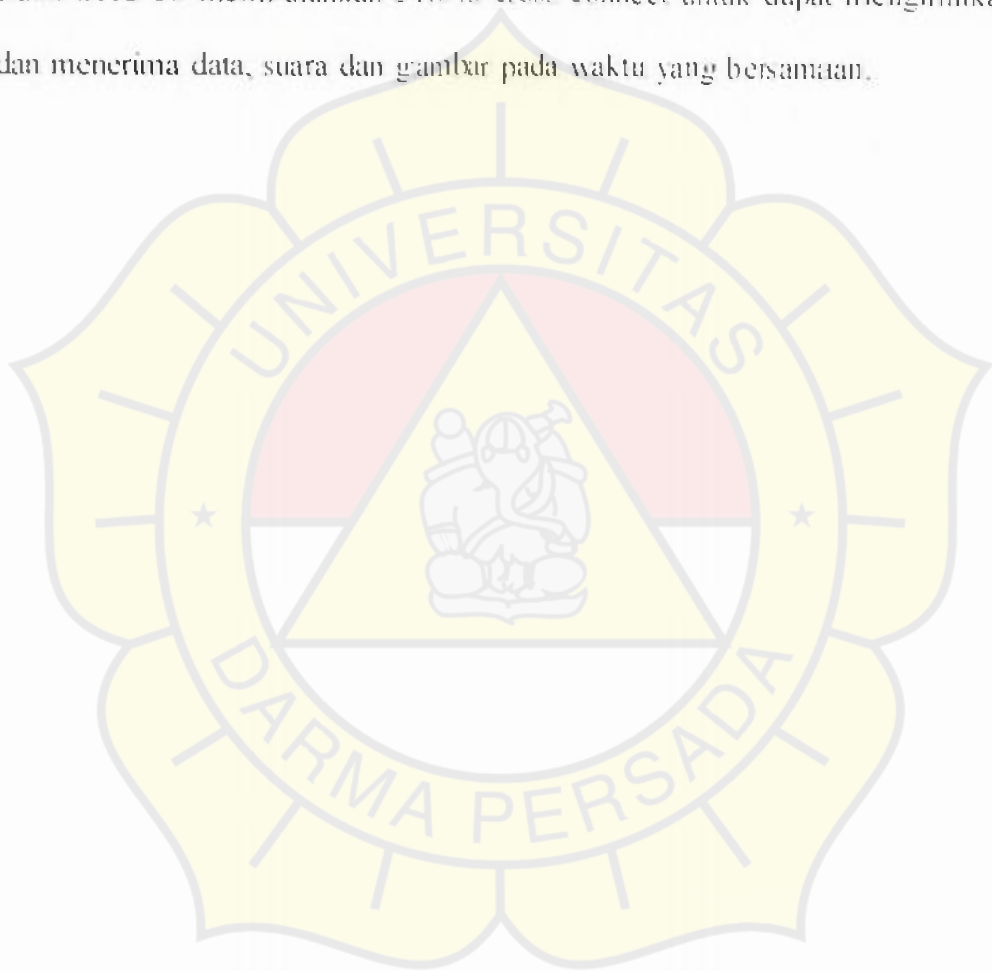


BAB V

KESIMPULAN

1. Dari hasil pembahasan DXC 30 dapat diketahui bahwa cara kerja DXC 30 sama dengan cara kerja pada sentral telepon dan sebagai Converter dan Cross Connect, DXC dirancang untuk bekerja sendiri, sehingga memudahkan user untuk mengawasi kerja DXC 30 melalui terminal Supervisi.
2. DXC 30 memberikan layanan time slot routing untuk dapat menginvers kedua jenis time slot pada jaringan yang berbeda dengan menggunakan Time Division Switch dan bantuan software untuk dapat me-mapping timeslot tujuan ke port yang dituju.
3. Pada aplikasi drop-insert yang menghubungkan DXC 30 dengan tiga trunk yang berbeda dapat diketahui yaitu 783 jumlah cross connect yang dibutuhkan DXC 30 untuk dapat secara bersamaan mengirimkan dan menerima data, suara dan gambar.

4. Sedangkan untuk jumlah kapasitas diatas tiga trunk, maka dapat dikatakan sebagai aplikasi multidrop. Pada penerapannya DXC 30 hanya mampu memberikan layanan untuk delapan trunk yang berlainan dengan memisahkan transmit dan receivenya. Jadi jumlah cross connect untuk kapasitas delapan trunk DXC 30 membutuhkan 34.048 cross connect untuk dapat mengirimkan dan menerima data, suara dan gambar pada waktu yang bersamaan.



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DAFTAR LAMPIRAN

1. Spesifikasi Teknik Interface
2. DXC – 30 Command
3. Installing New Software Releases
4. Fungsi Parameter dan Mode Mapping Port DE1/DHS
5. Tabel DXC I/o Modul
6. DXC 30 dengan 8 Trunk

Technical Specifications

TI Electrical Interfaces (DTE Modules)	
Applicable Standards	<ul style="list-style-type: none"> - AT&T TR-624II, ANSI T1.403 - ITU-T Rec. G.703, G.704
Framing	D4 (SF), ISF
Nominal Line Data Rate	1.544 Mbps
Line Code	AMI
Zero Suppression	<ul style="list-style-type: none"> - Transparent (no zero suppression) - B7Z5 - B8Z5 <p>The desired mode is software-selectable</p>
Impedance	100Ω, balanced
Signal Levels	
Transmit Levels	
Nominal Level	$\pm 3V \pm 10\%$
Levels with CSU	0 dB, -7.5 dB, -15 dB, -22.5 dB
Levels without CSU	Software-adjustable to be measured at 0 to 655 ft
Receive Levels	<ul style="list-style-type: none"> - 0 to -36 dB with CSU - 0 to -10 dB without CSU
Jitter Performance	Per AT&T TR-624II
Connector	RJ-45 connector
TI Optical Interfaces (DFO/TI Modules)	
Applicable Standards	AT&T TR-624II, ANSI T1.403, ITU-T Rec. G.921, G.956
Framing	D1(SF), ISF
Nominal Line Data Rate	1.544 Mbps
Fiber-Optic Link Interface	
Performance	Refer to Table 1-2
Connectors	ST or FC/PC, in accordance with order

Electrical Interfaces (DEI and DEI/A Modules)	
Applicable Standards	ITU-T Rec. G.703, G.704, G.732
Framing	
With CRC-4	<ul style="list-style-type: none"> - Time slot 0 multiframe for CRC-4 protection, and 16-frame multiframe managed by means of time slot 16(G.732S) for use of CAS - Time slot 0 multiframe for CRC-4 protection, and no multiframe (G.732N), intended for use with CCS
Without CRC-4	<ul style="list-style-type: none"> - 16-frame multiframe managed by means of time slot 16(G.732S) for use of CAS - No multiframe (G.732N), intended for use with CCS
Nominal Line Data Rate	2.048 Mbps
Line Code	HDB3
Line Impedance	<ul style="list-style-type: none"> - 120Ω, balanced - 75Ω, unbalanced <p>The line impedance is selectable by jumpers</p>
Signal Levels	
Transmit Levels	
Nominal Levels	<ul style="list-style-type: none"> - Balanced interface: $\pm 3V \pm 10\%$ - Unbalanced interface: $\pm 2.37V \pm 10\%$
Receive Levels	<ul style="list-style-type: none"> - 0 to -40 dB with LTU - 0 to -10 dB without LTU
Jitter Performance	Per ITU-T Rec. G.823
Connectors	
Balanced interface	<ul style="list-style-type: none"> - DEI modules: RJ-45 connector - DEI/A modules: 15-pin D-type connector
Unbalanced interface	Two BNC coaxial connectors (DEI modules only)

El Optical Interfaces (DFC/El Modules)	
Applicable Standards	IITU-T Rec.G.704, G.732,G.921, G.956
Framing	
With CRC-4	<ul style="list-style-type: none"> – Time slot 0 multiframe for CRC-4 protection, and 16-frame multiframe managed by means of time slot 16 (G.732S) for use of CAS – Time slot 0 multiframe for CRC-4 protection, and no multiframe (G.732N), intended for use with CCS
Without CRC-4	<ul style="list-style-type: none"> – 16-frame multiframe managed by means of time slot 16 (G.732S) for use of CAS – No multiframe (G.732N), intended for use with CCS
Nominal Line Data Rate	2.048 Mbps
Fiber-Optic Link Interface	
Performance	Refer to Table 1-2
Connectors	SI or FC/PC, in accordance with order
Time Slot Mapping	
Routing Capabilities	<ul style="list-style-type: none"> – Any time slot to any time slot – With/without A-law/μ-law and signaling conversion <p>Selectable per time slot</p>
Routing Modes	<ul style="list-style-type: none"> – Bi-directional (normal) mode – Unidirectional mode
System Clock Sources	
Main Source	<ul style="list-style-type: none"> – Internal oscillator (accuracy: ± 32 ppm) – Locked to the receive clock of any link – Locked to an external (station) clock source (2.048 MHz or 1.544 MHz, user-selectable) <p>Main source is software-selectable</p>
Fallback Source	<ul style="list-style-type: none"> – Locked to the receive clock of any link – Locked to the external (station) clock <p>Fallback source is software-selectable</p>
Elastic Buffer	
Buffer Length	± 1 frame

Introduction

Buffer Underflow	1 frame repeated without frame sync loss
Buffer Overflow	1 frame skipped without frame sync loss
Data Delay	<ul style="list-style-type: none"> - T1 Ports: Up to 5 frames (625 μsec) - E1 Ports: Up to 3 frames (375 μsec)
Unused Time Slot Code	5 software-selectable, 00 to FF (hexa)
OS Time Slot Code	Software-selectable, 00 to FF (hexa), separately for voice and data time slots
Diagnostics	<ul style="list-style-type: none"> - Local (analog) T1 or E1 loopback - Remote (digital) T1 or E1 loopback - BER testing - Code-activated network loopbacks per ANSI T1.403 (T1 interfaces only) - In-band code-activated loopback per ANSI T1E1.2/93-003 (T1 interfaces only)
Statistics	
T1/E1 Diagnostics	<ul style="list-style-type: none"> - Full support of ANSI T1.403 statistics - Local support of AT&T Pub. 54016 statistics - Transparent transfer of the FDL between two T1 ports (software-selectable)
E1 CRC-4 Diagnostics	Per ITU-T Rec. G.706
Redundancy (DXC-30 and DXC-8R only)	Two power supplies and two common logic modules
Alarm Response (Both Directions)	See Table 1-3
Indicators	<ul style="list-style-type: none"> - Major alarm - Minor alarm - Test active - On-line DCI.2 module (DXC-30/DXC-8R only) - On-line DPS module (DXC-30 only)
Alarm Relay	Floating normally-open and normally-closed contacts with common reference, activated in case of major alarm
CONTROL Serial Port	
Interface	V.24/RS-232, asynchronous, DCE or DTE (software selectable)
Connector	9-pin D-type female connector

Data Rate

300, 1200, 2400, 4800, 9600, and 19,200 bps, with automatic detection of data rate (Autobaud)



DXC-30 Command

DXC30>h

SYSTEM CONFIGURATION COMMANDS

DEF PORT SS PP	DEF SP
DEF SYS	DEF NAME
DEF NODE	DEF PWD
TIME	DATE

F - Terminal Function

DEF TERM [VT100] [TV920] [VT52] [FREEDOM100] [FREEDOM220]	
INITF [VT100][TV920] [VT52] [FREEDOM100] [FREEDOM220]	
INIT DB	LOAD DB
EPD DB	DEF DCL FLIP
DEF NP	DEF CALL
DEF AGENT	DEF BERT SS PP
DEF AIM ATTRIB	LOAD HW
LOAD OFFLINE DB	

TEST COMMAND

LOOP R SS PP	LOOP L SS PP
LOOP TX-ILB SS PP	LOOP TX-PLB SS PP
LOOP BERT SS PP	LOOP INBAND SS PP
LOOP TS REM SS PP	
CLR LOOP L SS PP	CLR LOOP R SS PP
CLR LOOP TX-ILB	CLR LOOP TX-PLB SS PP
CLR LOOP SS PP	CLR LOOP BERT SS PP
CLR LOOP INBAND SS PP	CLR LOOP TS REM SS PP
CLR LP - SAME AS CLR LOOP	

SYSTEM STATUS COMMAND

DSP ST SYS	DSP REV[*][SS]
DSP EDC SS PP	DSP PM SS PP [/C]/[CA]
DSP HDR TSE	DSP ST SS[PP]
DSP ALM[CA]	CLR ALM[A]
DSP CON SS PP	CHK DB
DSP BERT SS PP [/C]/[I]/[S]	DSP AGENT
DSP FLIP [SS]	

SYSTEM CONTROL COMMAND

RESET
RESET IO SS
EXIT
BYE

Appendix C

Installing New Software Releases

C.1 Scope

This Appendix presents procedures for installing new software releases in the DCL.2 module.

The DCL.2 module stores the software in flash memory. The software is stored in compressed format, and is decompressed and loaded into the module RAM upon power-up. Since the flash memory is not used to run the software, new software can be loaded in two ways:

- **Off-line**, using any PC directly connected to the serial port of the DCL.2 module. In this case, the DXC system cannot carry traffic while software downloading takes place. This procedure can be used both to upgrade the module software version, as well as to install software in a new DCL.2 module, e.g., a repaired module. This installation method is called *cold*, or *local*, software installation.

The cold software installation process must be performed from the DOS prompt, do not use a DOS window under Windows.

- **On-line**, through the management link connecting a RADview network management station (directly or through other RAD systems which support management communication, e.g., DXC, MEGAPIE X-2100, etc.), without stopping the operation of the DXC system in which the DCL.2 module is installed.

This procedure can only be used to upgrade the module software version while the equipment operates, and therefore it is called *warm*, or *remote*, software installation.

Software releases are distributed on diskettes. The diskettes carry the compressed software file, DXC30AR.J, and a downloading program, DLXEXE, which is required only for performing the cold installation.

C.2 Cold (Local) Installation Procedure

Preparations

- Copy the distribution files, DXC30.ARJ and DL_EXE, to the root directory of your PC.
- Set the SW LOAD section of the DIP switch SW1, located on the DCL2 module, to the ON position.
- Connect the serial port of the PC to the 9-pin connector designated CONTROL on the front panel of the DCL2 module. Use a standard straight communication cable.
- Run the DL_EXE program. After the program starts, select the option C, and configure the PC for downloading as follows:
 - Select the option P, and then select the PC serial port, COM1 or COM2, which is connected to the DCL2 module.
 - Press ESC.
 - Select the option F and type DXC30.ARJ as the file name.
 - Press ESC.

Downloading Procedure

- Turn the DXC on, and wait until all the DCL2 indicators turn off.
- Set the SW LOAD section of DIP switch SW1 on the DCL2 module to OFF, and then back to ON. This is needed to prevent erasing the DCL2 software in case you mistakenly turn the power on while the SW LOAD section of the DIP switch SW1 is set to ON.
- Wait until the TST, ALM MJ, and ALM MN indicators of the DCL2 module turn on. This indicates that the flash memory is erased.

Note

If a fault occurs during the erase process, the TST, ALM MJ, and ALM MN indicators start flashing. In this case, turn the DXC off, and then start again the procedure with the SW LOAD section of the DIP switch SW1 at ON.

- Start file sending by selecting the option S of the DL_EXE program. The software file is sent to the DXC, and you can monitor the progress of file transmission on the PC as the software is being sent to the DXC. The ON indicator of the DCL2 module flashes while data transfer proceeds normally, and ALM MJ and ALM MN indicators light steadily.

Note

If a fault occurs during file sending, the red ALM MJ indicator of the DCL2 module starts flashing. In this case, turn the DXC off, and start again the procedure with the SW LOAD section of the DIP switch SW1 at ON.

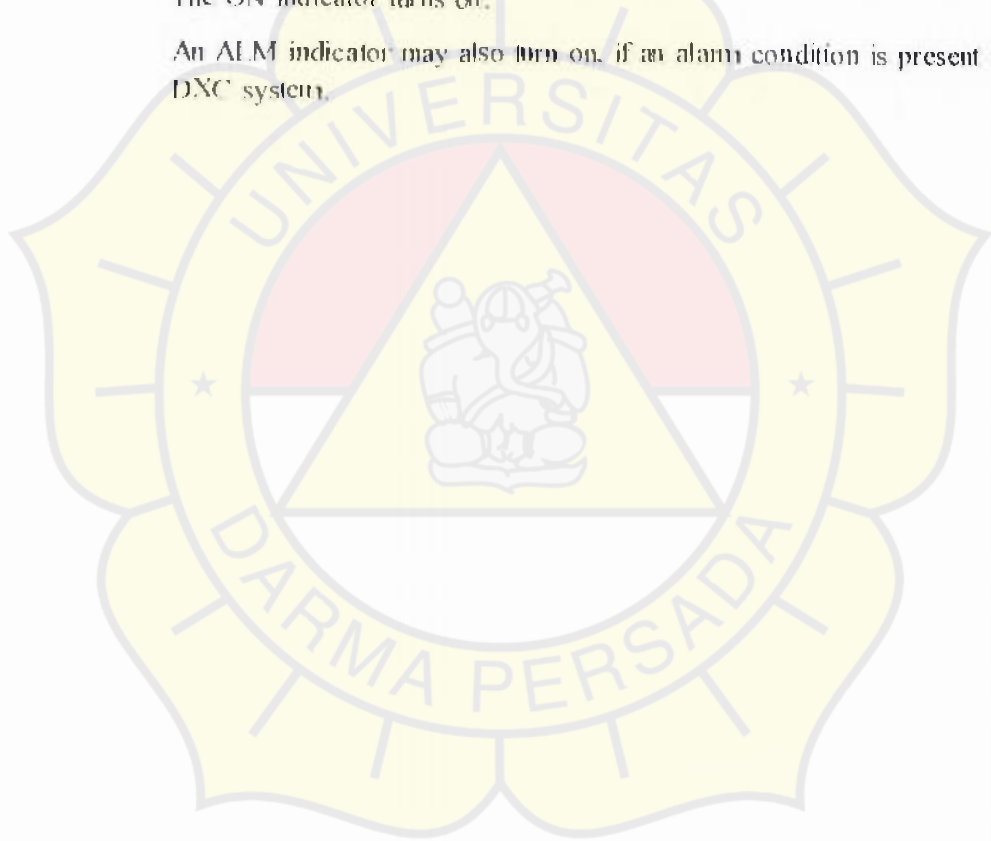
- Wait until all three DCL.2 indicators (ON, ALM MJ, and ALM MN) start lighting steadily; this indicates that the sending process has been successfully completed.
- Quit the DL.EXE program (select the option Q).
- Set the SW LOAD section of the DIP switch SW1 on the DCL.2 module to OFF, and then turn the DXC system off, and then back on. The new software is decompressed and loaded into the module flash memory. Note that the ON indicator flashes during decompression.

Note

If the decompression process fails, the ALM MJ and ALM MN indicator start flashing. In this case, repeat the software loading.

- After the decompression process is completed, the software start running. The ON indicator turns on.

An ALM indicator may also turn on, if an alarm condition is present in the DXC system.



C.3 Warm Installation (Upgrading) Procedure - Windows-Based Stations

If you manage the DXC using the RAIview Windows-based network management station, or another network management station running SNMP client software in a Windows environment, you can upgrade the DC1.2 software in running time (there is no need to turn the DXC off during the whole process).

Preparations

- Run Windows.
- Copy the distribution file, **DXC30.ARJ**, to the desired directory of the PC used as a management station.
- Make sure the network management station can communicate with the DXC.
- Run the TFTP application.
- Open the **TIME-OUT** menu and fill in the fields of the dialog box as follows:

Retransmission	20 seconds.
Total Retransmission	200 seconds.
Time Out	Any desired time, but not less than one minute.

- Open the **TRANSFER** menu and fill in the fields of the dialog box as follows:

Host Name	Enter the IP address of the destination DXC system, in dotted quad notation.
Remote File	Enter the file name, DXC30.ARJ .
Transfer Type	Select Send .
Transfer Mode	Select Binary .
Local File	Enter the full path needed to reach the file DXC30.ARJ .

- When done, press the **OK** button.
- The file **DXC30.ARJ** is now sent to the DXC. The TFTP window displays the number of bytes already sent to the DXC. If a fault occurs, an error message will be displayed; in this case, wait at least 30 seconds and then start again by displaying the **TRANSFER** menu.
- After the transfer is successfully completed, the DC1.2 module is automatically reset, while the other DXC modules continue operating normally. Due to module resetting, the new software is decompressed and loaded into the module RAM. Note that the ON indicator flashes during decompression.

Fungsi Parameter port DEI adalah sebagai berikut:

CG/A: Adalah untuk memilih penggunaan metode pensinyalan dalam Carrier Group alam (CGA) termasuk (link out-of-service) ke link yang dipilih yaitu sebagai berikut : None, Trans atau Full.

IDLE_TS_CODE: Yaitu untuk memilih jenis idle yang dimasukkan ke time slot dalam frame yang ditransmisikan langsung ke modul port.

OOS SIG : Pada saat NONE yang dipilih untuk parameter CGA, parameter ini membagi dua bagian yaitu bagian A, B bits pensinyalan selama masa out-of-service. Pensinyalan bit C dan D tidaklah pengaruh, (C selalu "0" dan D selalu "1"). Untuk "1" berarti On-look (idle) dan "0" berarti Off-look (busy).

VOICE OOS : Pada saat NONE dan TRANS dipilih oleh CGA, pemilihan kode ditransmisikan selama masa out-of-service pada definisi ini time slot sebagai time slot voice.

DATA OOS : Pada saat TRANS dipilih oleh CGA, pemilihan kode ditransmisikan selama masa out-of-service pada definisi ini time slot sebagai time slot data.

INB_MNG : Mengontrol perpindahan pada in-band trafik manajemen langsung ke port yang dituju.

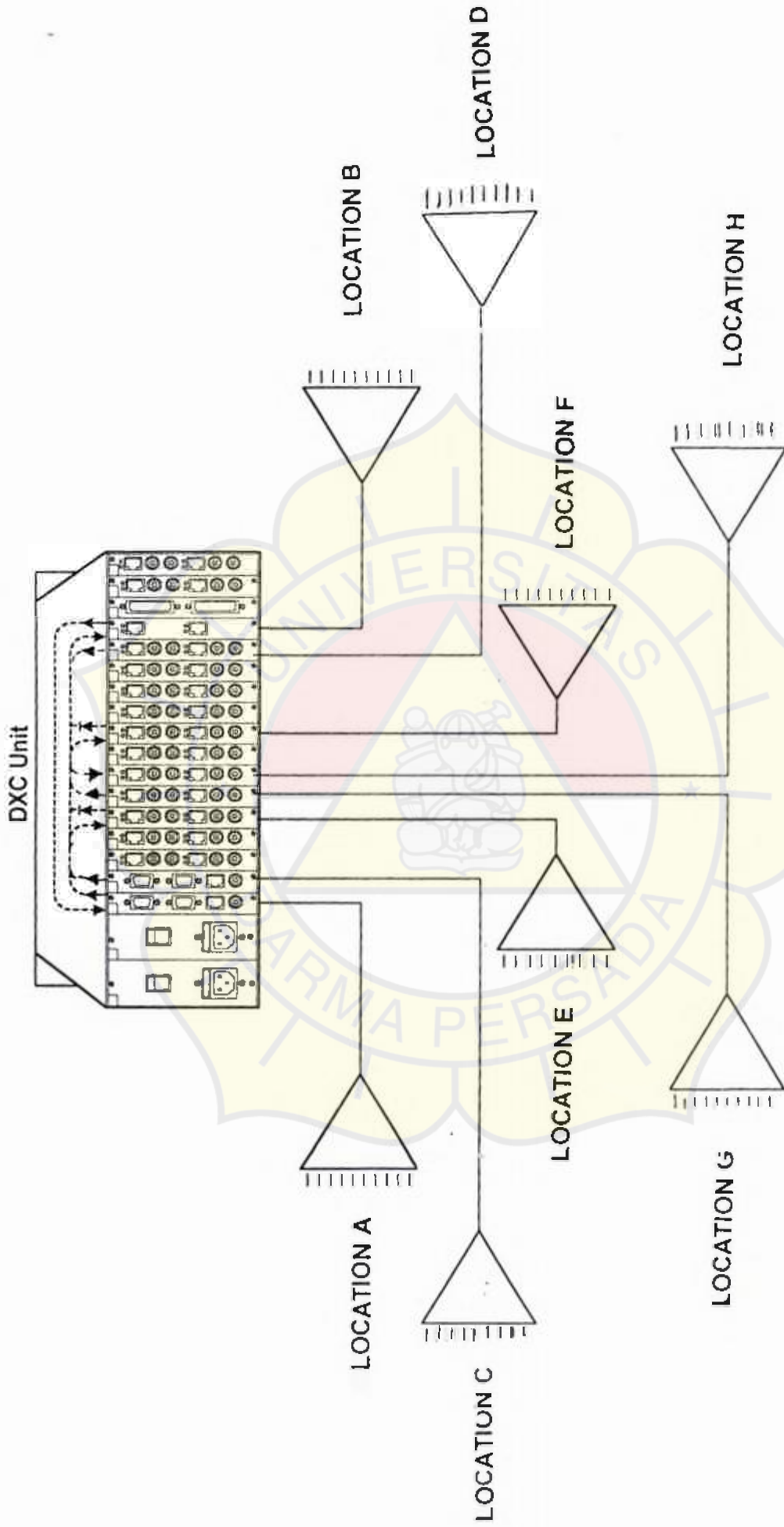
ROUTE_PROF : berfungsi mengontrol jadwal routing untuk transmisi, yang mana memungkinkan menggunakan routing untuk membawa trafik manajemen langsung pada link tujuan.

Fungsi parameter mode mapping untuk Port DE1 adalah sebagai berikut:

MAP_MODE : Memilih mode mapping time slot untuk port ini. pilihannya yaitu **SEQ** (sequential mapping) dan **USER** (mapping time slot secara individual oleh user), mapping individually dibuat untuk port yang lain dan tidak pengaruh terhadap mode time slot mapping yang digunakan oleh port yang lain, sebagai contoh saat mode SEQ dipilih pada satu port (mode ini memungkinkan anda untuk merouting se-bundel time slot), dan port yang dirouting ke port tujuan yang mana mode mappingnya USER, mode time slot mapping yang digunakan pada port tujuan tidaklah berubah ke SEQ.

START_TS : parameter ini berlaku hanya jika mode SEQ yang dipilih. Fungsinya untuk menunjukkan nomer pertama pada time slot dalam budel dari time slot yang diambil dari frame yang ditransfer langsung ke port yang dirouting ke tujuannya. Range yang diijinkan pada time slot adalah 1 sampai dengan 31.

NUM_OF_TS : Parameter ini berlaku hanya jika mode SEQ yang dipilih. Fungsinya untuk menunjukkan nomer pada time slot yang dirouting antara sumber dan port tujuan. Range yang berlaku pada time slot adalah 1 sampai 31, bagaimanapun juga saat memilih nomer ini adalah sangat penting untuk mempertimbangkan permulaan time slot, dan nomer total pada time slot yang tersedia pada port tujuan (saat port tujuannya adalah DT1, nomer maksimumnya time slotnya adalah 24).



Gambar . . . : penerapan type Multidrop

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