SAMSUNG Product Bulletin

Samsung Telecommunications America (STA) has recently received a number of phone calls from dealers who are installing DCS systems asking two basic questions: (1) how to interconnect two DCS systems using a small quantity (eight or ten) of T1 E & M tie trunks and using the remainder of the T1 bandwidth to bridge the LANs present at each end of the T1 and (2) how to interconnect two DCS systems located on the same physical premises using T1 to provide 24 two-way tie trunks between the systems.

To answer these questions, STA contacted Digital Link Corp. of Sunnyvale, CA, a manufacturer of CSU/DSU equipment. A CSU/DSU is a device that incorporates a Channel Service Unit (CSU) required to terminate a T1 facility at a customer's premises and a Data Service Unit (DSU) that provides a data communications interface to bandwidth on the T1 facility. Additionally, the CSU/DSU manufactured by Digital Link provides a "drop and insert" function. This means that the unit can provide some of the T1 bandwidth to the DCS for voice communications while also being able to connect some of the T1 bandwidth to the integrated DSU for handling data communications. The amount of bandwidth provided to the voice and data applications is programmable in the CSU/DSU device. Typically, data bandwidth can be assigned in multiples of 56 or 64 Kbps depending upon the configuration of this equipment. Thus it can meet many customer needs.

STA wanted to test this equipment with the DCS to verify that it was compatible and provided the desired functionality. Consequently, we obtained a sample pair of Digital Link VX ENCORE CSU/DSUs from National Business Group, Inc. of Coral Springs, FL. Our contact was Scott Tumelty at (305) 796-0055 (FAX (305) 796-0868). Mr. Tumelty provided us with two VX ENCORE units that we subsequently tested with two DCS systems in our laboratory. We found them to be compatible and very useful for DCS applications.

The three diagrams provided with this bulletin provide a pictorial view of the configurations that we looked at using the VX ENCOREs. A VX ENCORE has a T1 network termination, an auxiliary port for connecting the DS-1 digital stream from the DCS T1 interface card and two 25 pin data connector ports. These two data ports may be software-configured as V.35, RS-449 or EIA-530 data ports. Also, the VX ENCORE has an internal clock circuit that can be used as a T1 clock source when the CSU/DSUs are not connected to the public network (e.g., when two DCS systems are directly connected together). The entire
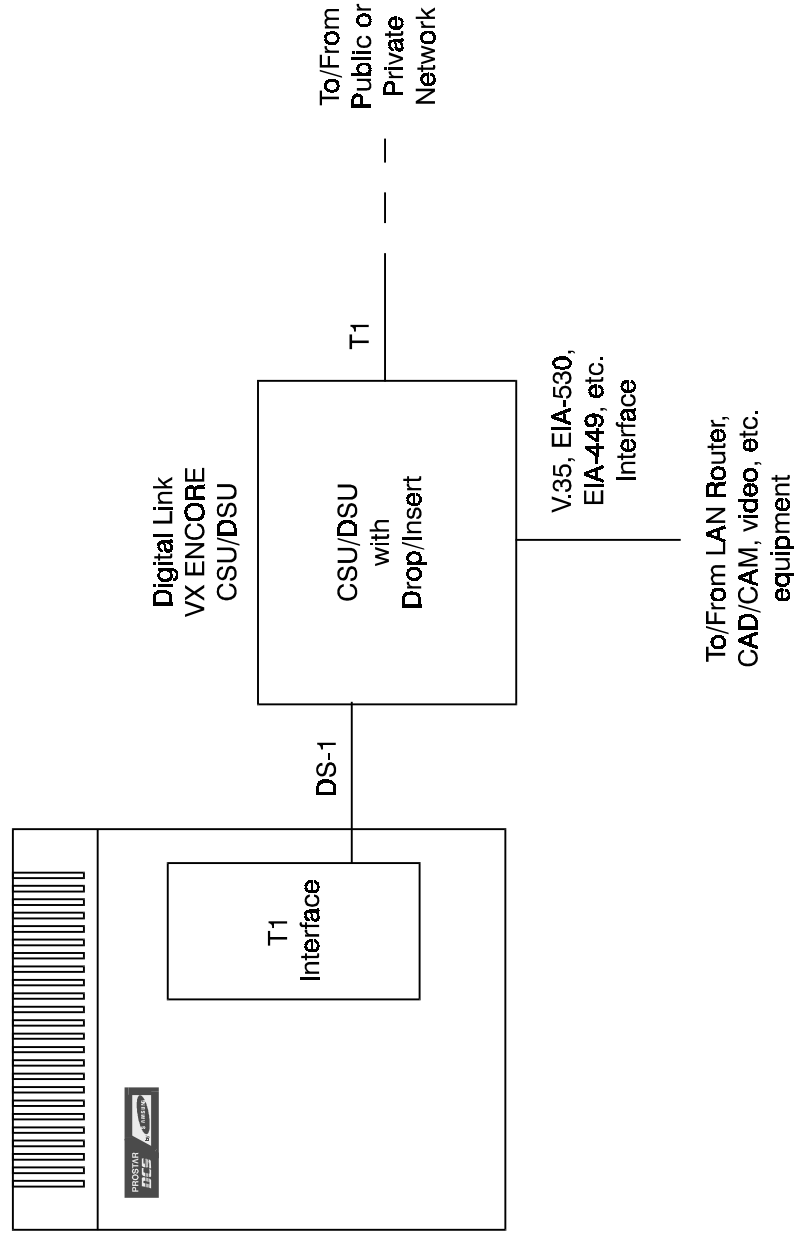
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unit can be configured, controlled and tested from the front panel or via an RS-232 control port connected to an ANSI VT-100 terminal (we used a PC in terminal emulation mode).

As a bonus, the VX ENCORE allows conversion of the standard DCS T1 D4 format with AMI or B8ZS line code to ESF format with AMI or B8ZS line code. This allows you to run Extended SuperFrame (ESF) format to get the additional performance statistics provided by ESF on the network side of the T1 facility if you so desire.
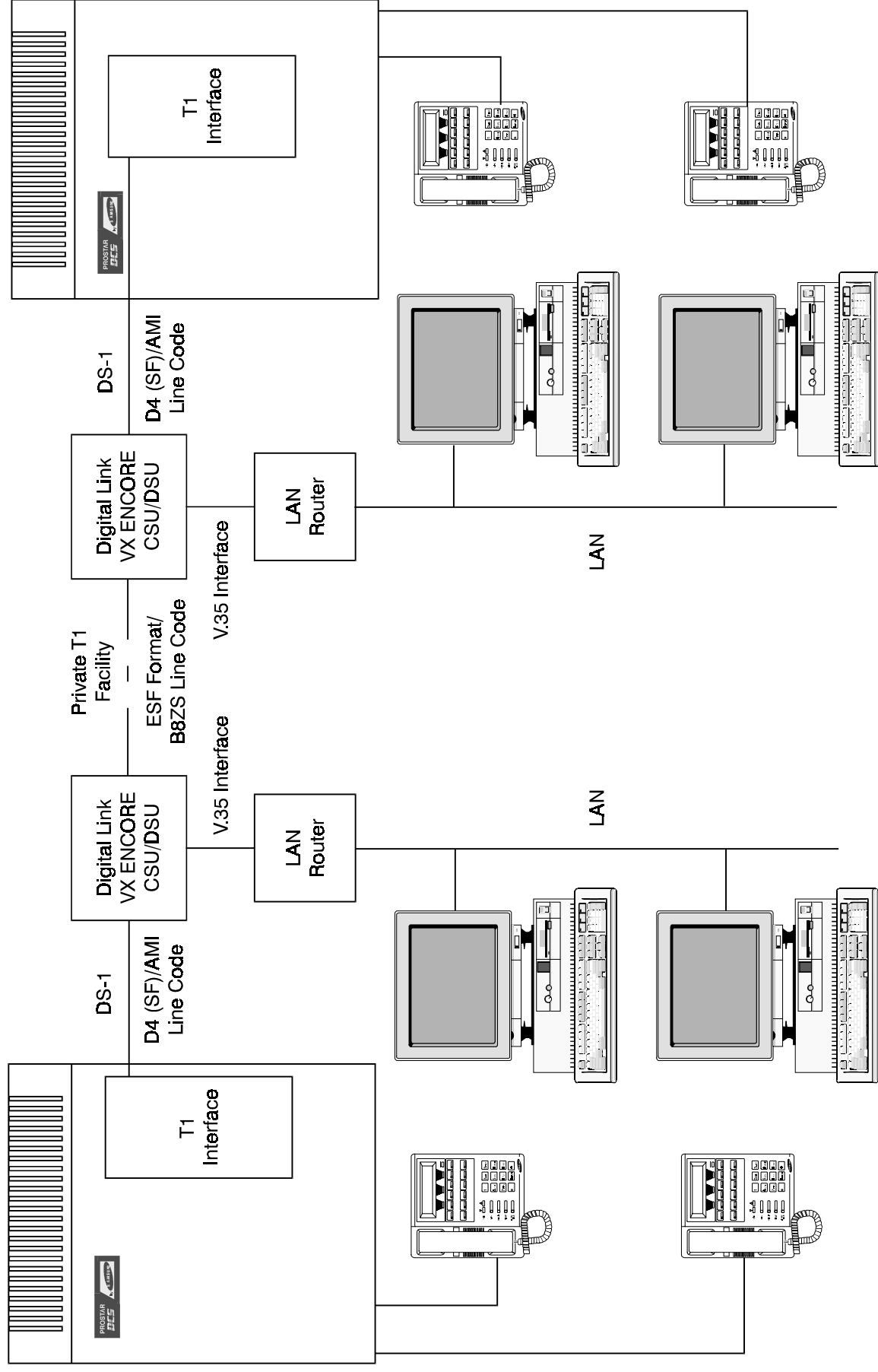
The list price of a Digital Link VX ENCORE unit is approximately $2699.00. Thus, we feel it provides an economical solution relative to the functionality (i.e., CSU, DSU, framing format changer, T1 clock source) that it provides.

Digital Link is not the only company that manufactures this type of equipment. Similar equipment is produced by AT&T Paradyne and ADC Kentrox, to name a couple of other manufacturers. However, because we were able to obtain samples from Digital Link and have tested them at our facility, we know that they work with the DCS.

We hope you will find this information helpful in proposing the DCS to your customers.

Digital Link
VX ENCORE
CSU/DSU

T1

To/From
Public or
Private
Network

CSU/DSU
with
Drop/Insert

V.35, EIA-530,
EIA-449, etc.
Interface

To/From LAN Router,
CAD/CAM, video, etc.
equipment

DS-1

T1
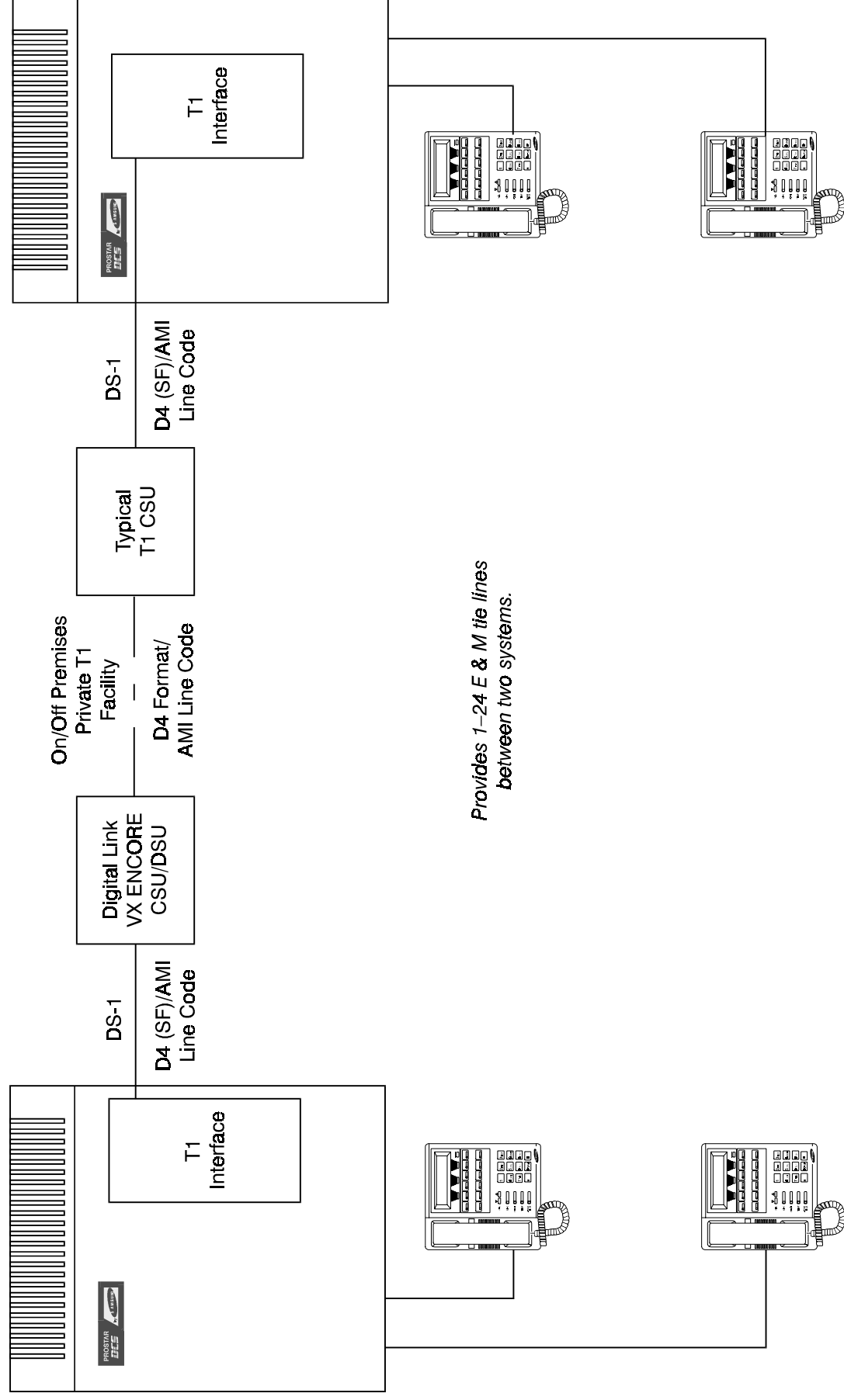Interface

PROSTAR
DCS
by SAMSUNG

Typical DCS T1 Network Configuration

Typical Applications Example
Interconnecting Two DCS Systems via T1 Facilities with Bandwidth Allocated for LAN Interconnection

PROSTAR DCS

T1
Interface

DS-1

D4 (SF)/AMI
Line Code

On/Off Premises
Private T1
Facility
—
D4 Format/
AMI Line Code

Typical
T1 CSU

Digital Link
VX ENCORE
CSU/DSU

DS-1

D4 (SF)/AMI
Line Code

PROSTAR DCS

T1
Interface

Provides 1–24 E & M tie lines
between two systems.

Typical Applications Example
Interconnecting Two DCS Systems via T1 Facilities