D/480SC-2T1 Shown

Side view of
D600SC-E1 Shown

SCSA HARDWARE MODEL	AEB HARDWARE MODEL	PEB HARDWARE MODEL

DualSpan Series

Voice Processing and T-1/E-1 ISDN PRI Boards

MODEL	CHANNELS	INTERFACE	FORM FACTOR	RESOURCE BUS	OS SUPPORT	SIGNALING
D/300SC-2E1	30	dual E-1 (2.048 Mb/s)	ISA AT	SCbus	MS-DOS UNIX Windows NT	R2 MF, CAS, ISDN
D/600SC-2E1	60	dual E-1 (2.048 Mb/s)	ISA AT	SCbus	MS-DOS UNIX Windows NT	R2 MF, CAS, ISDN
D/240SC-2T1	24	dual T-1 (1.544 Mb/s)	ISA AT	SCbus	MS-DOS UNIX Windows NT	Robbed Bit, ISDN
D/480SC-2T1	48	dual T-1 (1.544 Mb/s)	ISA AT	SCbus	MS-DOS UNIX Windows NT	Robbed Bit, ISDN

The DualSpan™ Series of digital voice and network interface boards provide two E-1 or T-1 ISDN Primary Rate Interface lines of service termination and call processing for 30 or 60 voice channels (E-1 boards) or 24 or 48 channels (T-1 boards) in a single PC slot. Functionally, the DualSpan boards are equivalent to two single-span boards, such as the D/300SC-E1 or D/240SC-T1, combined into one single–slot ISA board. A unique multiprocessor architecture comprising digital signal processors (DSPs) and general purpose microprocessors handles all telephony signaling and performs all DTMF, MF, and audio/voice signal processing tasks. The DualSpan boards, as members of the DIALOG/HD™ High Density Voice and Switching Products Series, are based upon Signal Computing System Architecture™ (SCSA™). SCSA provides an open architecture that enables developers to use products from multiple vendors to build a unified computer telephony

FEATURES AND BENEFITS

- High channel-per-slot density: two E-1/T-1 ISDN PRI lines plus 30 or 60 channels (E-1)/24 or 48 channels (T-1) of voice processing in a single ISA slot. System integrators and developers can lower costs by incorporating more ports per chassis, by using machines with fewer slots, and by easing configuration/installation.

- Create more cost-effective switching solutions via access to the SCSA™ SCbus™ with its 2048 time slot capability; build higher density systems and large, multinode systems through SCxbus™ interbox communications. The SCbus also provides access to a wide variety of technologies such as fax, text-to-speech, and automatic speech recognition.

- Dialogic downloadable signal and call processing firmware, SpringWare™, provides easy feature enhancement and field-proven performance based on over four million installed ports

- PerfectDigit™ DTMF (touchtone) provides reliable detection during voice playback — allows callers to "type-ahead" through menus

FEATURES AND BENEFITS (cont.)

- Independent Motorola DSP56002 digital signal processors, clocked at 66 MHz, each with private, high-speed SRAM, permit execution of high-performance SpringWare signal processing algorithms

- Intel 486GX microprocessors off-load call processing tasks from host PC, giving more power to the application

- Board Locator Technology™ eliminates confusing dip switch or jumper settings and simplifies installation

- C language application program interfaces (APIs) for Windows NT® and UNIX® (multiple variants) shorten the development cycle so you can get your applications to market faster

- Configure multiple boards in a single PC (ISA bus) for easy and cost-effective system expansion on the best computing platform for your needs

- Support for worldwide ISDN Primary Rate protocols

- Supported in Dialogic CT Media™ for Windows NT which provides a standards-based application development software platform and run-time environment for building open telecommunication servers that can support multiple applications*

- Supports Boardwatch™, the SNMP-compatible software for remote CT board management

* CT Media Version 1.1 supports all ISA based DualSpan boards.

APPLICATIONS

- Voice messaging

- Interactive voice response

- Debit card and international call back

- Audiotex

- Operator services

- Telemarketing/call center

- Dictation

- Auto dialers

- Notification systems

- On-line data entry/query

solution. SCSA provides features such as distributed switching, logical addressing, and location independent resource management.

Downloaded firmware algorithms, SpringWare™, executed by the on-board DSPs, provide variable voice coding at 24 and 32 Kb/s ADPCM, toll quality G.726 ADPCM at 32 Kb/s, and 48 and 64 Kb/s µ-law or A-law PCM.

Sampling rates and coding methods are selectable on a channel-by-channel basis. Applications can dynamically switch sampling rate and coding method to optimize data storage or voice quality as the need arises. SpringWare firmware also provides reliable DTMF detection, DTMF cut-through, and talk off/play off suppression over a wide variety of telephone line conditions.

Dialogic voice products offer a rich set of advanced features, including state-of-the-art DSP technology and signal processing algorithms, for building the core of any computer telephony system. With industry-standard ISA bus expansion boards and a variety of channel densities to choose from, you can integrate Dialogic voice products easily into exactly the type of system you require at a price and performance level unmatched in the computer telephony industry.

In real time on all channels, DualSpan voice boards
- connect to 30/60 E-1 or 24/48 T-1 telephone channels
- detect touchtones
- play voice messages to a caller
- digitize, compress, and record voice signals
- place outbound calls and automatically report the result

CONFIGURATIONS

Use DualSpan boards to develop sophisticated, multifunction computer telephony systems incorporating capabilities such as voice processing, speech recognition, and text-to-speech. The DualSpan boards share a common hardware and firmware architecture with other Dialogic SCbus™ boards for maximum flexibility and scalability. Add features or grow the system while protecting your investment in hardware and application code. Applications can be ported easily to lower or higher line-density platforms with only minimum modifications.

The DualSpan boards install in IBM® PC AT® (ISA bus) and compatible computers (80386, 80486, and Pentium™-based PC platforms). A DualSpan board occupies a single expansion slot. Up to 16 boards can be configured in a system with each board sharing the same interrupt level. The number of boards and channels supported depends on the operating system used. The maximum number of lines that can be supported is dependent on the application, the amount of disk I/O required, and the host computer CPU and power supply.

DualSpan boards can operate in either terminate or drop-and-insert configurations. In a terminate configuration, the DualSpan board handles the call processing of the digital audio and telephony signaling. If additional resources such as automatic speech recognition (ASR), facsimile, or text-to-speech (TTS) are required, the resources can be switched to the call via the SCbus. When a DualSpan board is installed as a terminating device, no external channel bank is required and the system operates as a standalone call-processing node.
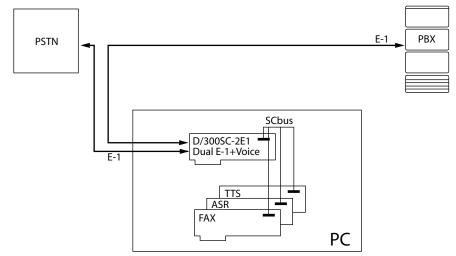
In a drop-and-insert configuration, the two E-1 or T-1 interfaces on the DualSpan board are connected via the SCbus and continuously pass all network interface time slots through to each other. This configuration can join two separate network interface lines or it can be placed in-line, between an E-1 or T-1 line and a switch (a PBX, for example). Calls on individual E-1 or T-1 channels can either terminate at one of the call processing resources on board or "flow through" transparently from the "upstream" E-1/T-1 interface to the "downstream" interface. In this configuration, the 24 (T-1) or 30 (E-1) ports of voice processing are usually sufficient to handle the 48 or 60 ports of T-1 or E-1 interface. The D/240SC-2T1 and D/300SC-2E1 boards are ideal for drop-and-insert configurations such as those used in call completion and call routing applications.

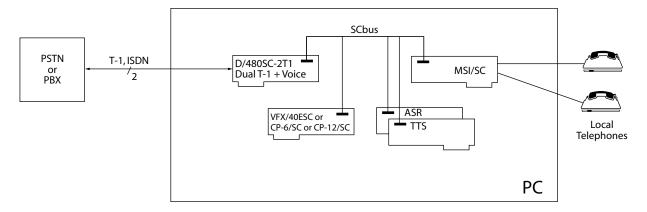DualSpan boards enable you to expand a system with minimal impact on

D/300SC-2E1 Configuration Example

D/480SC-2T1 Configuration Example

existing applications. A D/600SC-2E1 board, for example, can replace two D/300SC-E1 single-span boards without requiring changes to the application software.

ISDN PRI SUPPORT

Dialogic ISDN Primary Rate Interface (PRI) Access Firmware is a feature enhancement to the DIALOG/HD Voice and Switching Products Series. Dialogic PRI Firmware is approved for use with many popular protocols in major markets, based on both T-1 (1.544 Mb/s) and E-1 (2.048 Mb/s) physical interfaces.

Features and benefits of ISDN PRI include

- ISDN Primary Rate connectivity to Dialogic computer telephony systems
- Dialed Number Identification Service (DNIS) enables application to automatically identify the purpose of the incoming call
- Automatic Number Identification (ANI) enables application to identify the calling party
- ANI-on-Demand feature saves money by requesting ANI information only when needed
- ISDN offers inherent benefits to call center applications with its fast call setup and fast retrieval of DNIS and ANI information on inbound calls
- Call-by-Call Service Selection — Allows an application to select the most place outbound calls and automatically report the result

- Subaddressing allows direct connection to individual extensions or devices sharing the same phone number; or, it can be used as a proprietary messaging mechanism
- Powerful and universal software API simplifies access for developers who are unfamiliar with ISDN, yet enables sophisticated control of features
- Multinational approvals with many popular protocols
- User-to-User Information allows an application to send proprietary messages to remote systems during call establishment
- Facility, Notify, and optional information elements allow applications to work with network-specific supplementary services

SOFTWARE SUPPORT

DIALOG/HD DualSpan boards are supported by Dialogic System Software and Software Development Kits for MS-DOS®, Windows NT®, and UNIX® operating system environments. These packages contain a set of tools for developing complex multichannel applications.

For added flexibility, the DualSpan ISA-based boards are also supported in Dialogic CT Media. This resource management software makes application development easier, and enables applications from different suppliers written to standard APIs like ECTF S.100 and TAPI to work together on a single server. CT Media makes this possible by managing technology resources (boards and host-based technologies) within the server, and providing basic switching functions to multiple client applications.

CT Media runs on Windows NT 4.0. A minimum of 24 MB should be used in any field-deployable system with 64 MB or more recommended. A Pentium™-class processor is recommended, as is a fast (i.e., SCSI II) disk I/O system.

The DualSpan Series supports Boardwatch™, the SNMP–compatible software for remote CT board management. Boardwatch simplifies the management and lowers the total cost of operation of CT devices. These centralized management capabilities provide a single point of configuration and inventory for all network devices. Fault management for high–availability systems includes diagnostics, detection, and recovery capabilities. ■

FUNCTIONAL DESCRIPTION

For detailed descriptions and block diagrams, see the D/300SC-E1 or D/240SC-T1 data sheet for analogous single-span E-1 and T-1 functionality. ■

■ Technical Specifications**

Max. boards/system	8 (Windows NT, UNIX); number may be limited by application and system performance.

AUDIO DIGITIZING:

32 Kb/s	G.726 ADPCM
24 Kb/s	OKI ADPCM
32 Kb/s	OKI ADPCM
48 Kb/s	µ-law PCM
64 Kb/s	µ-law PCM

POWER REQUIREMENTS:

D/240SC-2T1

+5 VDC	2.0 A, typical; 2.4 A, max.
+12 VDC	30 mA typical; 40 mA max.
−12 VDC	30 mA typical; 40 mA max.

D/300SC-2E1

+5 VDC	2.5 A, typical; 3.0 A, max.
+12 VDC	30 mA typical; 40 mA max.
−12 VDC	30 mA typical; 40 mA max.

D/480SC-2T1

+5 VDC	3.6 A, typical; 4.5 A, max.
+12 VDC	30 mA typical; 40 mA max.
−12 VDC	30 mA typical; 40 mA max.

D/600SC-2E1

+5 VDC	3.9 A, typical; 4.5 A, max.
+12 VDC	30 mA typical; 40 mA max.
−12 VDC	30 mA typical; 40 mA max.

OPERATING ENVIRONMENT:

Operating temperature	0° C to +50° C
Storage temperature	−20° C to +70° C
Humidity	8% to 80% noncondensing
Cooling	6 CFM minimum per slot (D/600SC-2E1 and D/480SC-2T1 models only)

HOST BUS ARCHITECTURE:

Form factor	ISA PC AT, 13.3 in. long. 0.793 in. wide (total envelope), 4.5 in. high (excluding edge connector)

** All specifications are subject to change without notice.

NOTES

See either the D/300SC-E1 or D/240SC-T1 data sheet for the SpringWare voice processing specifications that apply to the E-1 or T-1 DualSpan boards respectively. For network interface specifications, see the DTI/SC data sheet.

DualSpan boards do not support PEB.

HARDWARE SYSTEM REQUIREMENTS

- 80386, 80486, or Pentium IBM PC AT (ISA) bus or compatible computer
- Operating system hardware requirements vary according to the number of channels being used
- Recommend cooling fan specifications of 6 CFM minimum per slot for D/600SC-2E1 and D/480SC-2T1 models

ADDITIONAL COMPONENTS

- Multidrop SCbus cables available