

AT&T Teletype 5540 Series Cluster Display Terminal Systems

■ PROFILE

Function • remote terminal-cluster system replacement for IBM 3274 C-Series and 3276 • employed for interactive inquiry/update, data entry, and program development • all processing and database services handled by host computer.

Architectures Supported • used with IBM S/360, S/370, 3030, 3081, and 4300 processors, and with 3790 communication systems • S/370 and 4300 function under SNA/SDLC • S/360, S/370, and 4300 operate under BSC.

Communications • CICS/VS under ACF/VTAM, ACF/VTAME, ACF/TCAM for OS/VS and DOS/VS • IMS/VS under BTAM and ACF/VTAM • single line, switched or nonswitched at speeds of 200 to 9600 bps, half-/full-duplex • BSC/SDLC • ASCII/EBCDIC codes • RS-232C interface.

Operating System • local proprietary control software handles terminal-cluster interaction • remote service through processor under DOS, DOS/VS, DOS/VSE, OS/VS, OS, VM/370.

Database Management • none; only in association with host IMS/VS and CICS/VS facilities.

Transaction Processing Management • primarily through CICS or IMS, which acts as terminal-oriented transaction monitor with file processing facilities • supports send/receive batch and inquiry tasks.

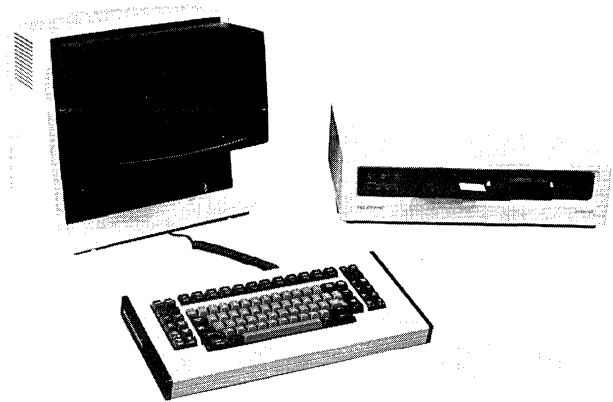
Support Software • supported by and employs software and program facilities of host processor • no local independent (from host) off-line programming/processing facilities • system diagnostics check DTE and DCE.

Processor • 16-bit microprocessor for system and communications control • 384K-byte RAM for 5546; 640K-byte RAM for 5544.

Terminals/Workstations • 6/12/24/32 CRT and printer cluster-controller models • maximum of 8 printers may be attached.

First Delivery • 1983.

Systems Delivered • unknown.



Comparable Systems • IBM 3274 C-Models and 3276, Lee Data System 300/400, Harris 8100/9200, ITT Courier 270, Memorex 2070, Racal-Milgo 4270/4276, and Davox Series 1000.

Vendor • AT&T Teletype Corporation; 5555 Touhy Avenue, Skokie, IL 60077 • 312-982-2000.

Distribution • worldwide through local AT&T Teletype sales/service offices.

■ ANALYSIS

The 5540, introduced last year, consists of a family of cluster controllers, keyboard-displays and printers all aimed at the IBM 3274C/3276 market. With the 5540 and older 4540 series, AT&T Teletype has a complete product line which competes across the board with IBM's 3271/72/74B/75/76 family of products.

The 5540's controllers consist of a tabletop unit, Model 5546, and a floorstanding unit, Model 5544. The 5544 is offered in 2 versions, one handling 6 displays/printers and the other, 12. The 5546 is also available in 2 versions, one handling 16 displays/printers and the other, 32. AT&T Teletype sells upgrade kits which allow the smaller controller within a class to be field upgraded.

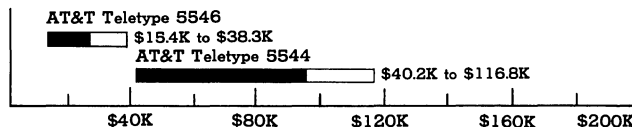
Both controllers support BSC and SNA/SDLC. The 4541-1 and 4541-2 remote controllers, on the other hand, supported BSC or SNA/SDLC but not both. The flexibility of the 5544/5546 stems from their soft-configurable design. All software, including protocols and system configuration, are resident on diskette and loaded at the time of operation. A shift from BSC to SNA/SDLC protocol involves only interchanging diskettes. (Principal competitors like IBM, Lee Data, Telex, Racal-Milgo, etc also offer similar products.)

AT&T Teletype offers 3 ergonomically designed terminals which compete with the older IBM 3178 and 3278-2 through -5 models, as well as the recently announced 3180 Model 1. That device allows users to select the number of displayable characters and formats, and essentially provides the base functions of 3278-2 through -5. AT&T Teletype has a similar product called the 5548-25, which allows a display format of 24/27 lines x 80/132 columns.

The printers offered with the 5540 are the same time-proven units

PURCHASE PRICE RANGE

hardware & software
5-yr maint/serv fee



AT&T TELETYPE 5540 SERIES PURCHASE PRICING bar graphs cover price ranges between "small" and "large" configurations for hardware products (solid bars) and for associated 5-year period maintenance (open bars) • **5546-31 SA** small system consists of a 6-port cluster controller with 4 Model 5548-12TA displays, low-profile keyboards, and 2 Model 45AP104AAA 30-cps dot-matrix printers; **5546-31 SB** large system consists of 12-port cluster controller with 8 Model 5548-12TA displays, low-profile keyboards, and 4 Model 45AP104AAA 30-cps dot-matrix printers • **5544-31SA** small system consists of a 16-port cluster controller with 5 Model 5548-22TF displays with low-profile keyboards, 7 Model 5548-12TF displays with low-profile keyboards, and 2 Model 4011-4LXO 220-/300-lpm printers; **5544-31SB** large system consists of a 32-port cluster controller with 10 Model 5548-22TF displays with low-profile keyboards, 15 Model 5548-12TF displays with low-profile keyboards, 5 Model 5548-25TF displays with low-profile keyboards, 2 Model 4011-4LXO 220-/300-lpm printers, and 2 Model 45AP104AAA 30-cps dot-matrix printers. All prices are single-quantity purchase.

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available with the 4540. Users can choose from 220- or 300-lpm belt printers, or 30- or 340-cps, dot-matrix, character printers. The AT&T Teletype printers are comparable in print speed with the IBM 3287 and 3289 units, but slower than the 3262.

Overall, AT&T Teletype offers products which are functionally equivalent to the 3270 components they are designed to replace. However, Teletype prices its products below their IBM counterparts, which makes them extremely attractive. The 5544 and 5546 cluster controllers compete with the IBM 3274 Models 21C, 31C, 41C, 51C, and the 61C. AT&T Teletype also provides a nondisplay controller compatible with the IBM 3276. The IBM 3274 controllers support up to 32 Category A terminals (e.g., 3270 displays and 3287/3289 printers). Models 51C and 61C accommodate 12 and 16 Category A terminals, respectively. The IBM 3276 only supports up to 8 displays/printers.

Price comparisons between AT&T Teletype and IBM are subtle because the 3270 is sold in **basic** and **standard** versions. The basic version of a 3274 controller contains 8 terminal/prINTER adapters, except the 41C and 61C, which are delivered with 32 and 16 adapters, respectively. Additional terminal/prINTER adapters are offered as options to extend the total number of devices handled to 32. The standard versions of the 3274-21 and 31 contain 24 adapters. According to IBM, the standard versions are composed of those features most often ordered by the end user. IBM produces these standard versions in quantity in anticipation of sales, and thus can be delivered in time frames much shorter than "custom systems." The price of a 3274-31C standard model is \$13,800. A basic 3274-31C with 8 adapters is \$12,420; additional adapters are sold in an 8-adapter cluster at a cost of \$918. Thus, a 31C with full 32 terminal/prINTER support would cost \$15,174. An AT&T Teletype 5544 with 32 adapters costs \$11,500. (For more IBM 3270 prices, see report 950-1048-3270).

The 3274-51C includes 8 Category A ports, upgradable to 12 ports. Again, AT&T Teletype offers no 8-port version, but a 5546 with 12 ports costs \$4,742 versus \$5,871 for a similarly equipped 51C. The 3274-61C is shipped with 16 ports at a price of \$7,600. An AT&T Teletype 5544 with an equivalent number of ports costs \$7,150.

In the keyboard-display terminal area, AT&T Teletype receives very strong competition from IBM's 3178 and newly announced 3180 Model 1. The 3178 replaces the old and soon-to-be-discontinued 3278-2 and sells for \$1,720 including keyboard. A comparable AT&T terminal costs \$1,633 or \$1,817; the price difference reflects the type of keyboard selected. As was previously mentioned, the 3180 Model 1 provides all of the display characteristics of the old 3278-2 through 5—another group slated for discontinuance. The 3180, including keyboard, costs \$2,295. The AT&T model, called the 5548-25, costs between \$2,817 and \$3,000. Again, the price spread reflects the keyboard type selected.

Low printer prices are also strong points for AT&T Teletype. The top-rated 3278-12 character printer with a 120-cps print speed begins at \$5,210. An AT&T Teletype 45AP202AAA, which prints at 125, 200, 300, and 340 cps, sells for \$4,038. Line printer pricing is similarly lower. An IBM 3289 Model 2 and 3 with print speeds of 160, 230, 300, and 400 lpm sells for \$13,140. The most expensive comparable model from AT&T runs \$5,595.

Obviously, price position is the key to success for the 5540 series. Its controllers are priced below comparable IBM units, and in most cases are even better than the leading competitors. Its terminals, however, should receive a good deal of price pressure from many of the principal players.

While the 5540 is very competitive with IBM, it does fall short in product breadth when compared with Lee Data, Telex, Harris, and Davox. All of those companies offer products not available from AT&T Teletype. For example, Lee Data, Telex, and Harris have a multihost communications facility at the controller level, and all 4 principal competitors plus IBM have personal computer facilities. All, except Davox, offer color terminals. These shortcomings and others are discussed under Limitations.

□ Strengths

Since AT&T Teletype did not significantly enhance the 5540 over

the past year, its strengths remain low price and flexibility. The overall flexibility of the product rests with its 5548-25 omniterminal and soft configurability of the system.

The 5548-25 encompasses all features of IBM 3278 Models 2 through 5, allowing users to display 80- or 132-column lines and display up to 27 lines (3564 characters per screen). However, while the 5548-25 wins hands down over the 3278 in price and performance, it does not fair well against the IBM 3180 Model 1. That unit has the same display characteristics as the 5548-25 but costs less—\$2,295 versus \$2,817 and \$3,000 for the AT&T Teletype product.

The 5540 is a soft-configurable system, allowing users to enter device assignments and operating parameters directly from the keyboard for ease of operation. The entered parameters are maintained on the system diskettes and are easily altered. While this facility is not unique to AT&T Teletype, it is a strong point because it makes the system more flexible and easier to use.

□ Limitations

While the 5540 was introduced only last year, AT&T Teletype is already far behind IBM and principal competitors such as Lee Data, Telex, and Harris in terms of advanced features. All, for example, offer personal computers and color terminals for attachment to the controller, and Lee Data, Harris, and Telex offer controllers with a multihost communications facility. With the Lee Data and Harris controller, one host can be local and one remote, or both can be remote. With Telex, both must be remote.

The lack of multihost addressing could present a crippling limitation for those considering distributed processing. The ability to exchange data is extremely important in that environment and having a multihost facility is a definite benefit. Under AT&T's architecture, the host must perform switching operations. If the host is some distance from the target 5540, the user incurs increased communication costs as well. A dual-mode cluster controller that handles local and remote hosts would also be a strong user benefit. This facility would permit users to configure a local host for the more commonly used applications, while also allowing access to a remote host for specialized services. Both the Harris 9220 and Lee Data 321 and 421 offer a local/remote capability; AT&T Teletype does not.

The lack of a personal computer facility will not inhibit 3270-like applications on the 5540, but it could make the product unattractive to those that need a local processing. IBM embraced this concept with the 5150 personal computer option for the 3278-2. It endorsed it completely with the 3270 personal computer released last Fall. That unit also emulates most functions of the 3278 and 3279 color terminal, and can switch operating modes directly from the keyboard.

A strong user benefit, especially for minicomputer networks, is the ability to handle asynchronous ASCII/Teletype terminals. This, of course, can be done through protocol converters, but those devices are costly add-ons. In addition, if the site currently does not have asynchronous terminals but needs to interact with a minicomputer, users must incur the cost of the terminal and software to control it. Lee Data allows this with its Model 1220 terminal, a device that emulates an ASCII/TTY terminal and permits users to switch from 3278 mode to ASCII mode from the keyboard. Davox, a relative newcomer to the 3270-compatible marketplace, offers a similar capability with its workstation Models 911, 921, 1911, and 1921 employed with its Series 1000 controllers. Those units emulate the 3274 Models 21C, 31C, 41C, 51C, or 61C.

A beneficial product missing from the AT&T Teletype family is a terminal multiplexer. A terminal multiplexer is a cost-saving device which allows multiple on-site terminals to share a single coaxial cable to the cluster controller. Thus users needn't bear the expense of buying and pulling cables from each terminal to the controller. The cost-savings in coaxial cable alone should easily pay for this device, since even something as simple as an 8-port multiplexer will save the cost of 7 separate coaxial runs. An added benefit from a terminal multiplexer is that it generally extends the distance between the terminal and cluster controller beyond the normal 5,000 feet imposed by the coaxial cable. Since the multiplexer contains a driver facility, distances can

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generally be increased an additional 2,500 feet. IBM, Lee Data, and Davox offer such multiplexers.

Other beneficial facilities which everyone including IBM lacks are remote dial-in, data compression, and print spooling. A dial-in facility, whereby a remote terminal can connect to the cluster controller over the public telephone network, is not difficult or expensive to implement. Many protocol converter vendors offer this with their 3274-like cluster controllers, and we are aware of no problems in using that method.

When you have up to 32 devices operating online, as the 5540 permits, you want every bit of the available bandwidth to count. A data compression facility provides such a service by eliminating unnecessary data such as zeros, blanks, and redundant characters. AT&T should consider this facility.

Print spooling is a technique whereby information bound for a relatively slow device like a printer is placed on an auxiliary device (usually a disk). This allows the printer to operate at its normal speed and suffer its normal problems without effecting the overall data communication activity. Currently no vendor, including IBM, has this facility.

IBM is ahead of everyone when it comes to data security. Through an encryption/decryption facility, data transmitted between 3270s are encoded via a combination of hardware and software. The encryption technique itself is an IBM implementation of the Federal Data Encryption Standard (DES). The lack of security measures is a severe limitation of all 3270 replacement manufacturers.

■ COMMUNICATIONS FACILITY OVERVIEW

□ Distributed Communications

The AT&T Teletype 5544 and 5546 controllers communicate in half-/full-duplex modes in point-to-point or multipoint environments over switched or dedicated lines at speeds up to 9600 bps. Both ASCII and EBCDIC transmission codes are supported. NRZ and NRZI line control is employed.

Communication control of the cluster controllers rests with the IBM host terminal access methods supported. For the IBM S/360, S/370, 3030, 3081, and 4300 hosts, these include IBM BTAM, BTAM-ES, TCAM, ACF/TCAM, VTAM, ACF/VTAM, ACF/VTAME, and EXTEM. For a description of these access methods, see report 950-I048-3270.

□ Distributed Configurations

The AT&T Teletype 5540 system consists of 2 cluster controllers (5544 and 5546), 3 display stations (5548-12, -22, and -25), and 2 classes of printers (4011 and 45XX). The 5544 cluster controller is available in 2 versions: one accommodates up to 16 displays/printers and the other up to 32. The 5546 cluster controller is designed for smaller applications. Again, 2 versions are offered: one supports up to 6 displays/printers and the other up to 12. With the 5544, no more than 8 printers and at least 1 display can be attached. The 5546 accommodates up to 3 printers and requires at least 1 display terminal.

□ Distributed Utilities

AT&T Teletype provides utilities which allow the user to configure the system software from the terminal keyboard to meet operational requirements; to create backup copies of the system diskette; to incorporate software modifications or updates; and to initialize diskettes for use in copy operations. In addition to the vendor-supplied utilities, users may also avail themselves of a host of IBM software designed for 3270. See report 950-I048-3270 for a description of these utilities.

AT&T Teletype Configuration Utility • allows users to specify hardware/software configurations • allows definition of displays/printers, operating modes, and restrictions • multiple copies made through Copy Utility.

AT&T Teletype Copy Utility • provides for reproducing entire system diskette to create backup copies; or copies with other operating configurations.

AT&T Teletype Diskette Initialize Utility • provides for

preparing new diskettes for use as a destination diskette during a Copy Utility operation.

■ SOFTWARE

The 5540 operates under control of remote IBM host processor software. The following briefly summarizes the software support provided by IBM hosts.

□ Operating System

IBM S/360, S/370, 3030, 3081 & 4300 Processors

The 5544/5546 operate under IBM OS, DOS, OS/VS1, OS/VS2(SVS), OS/VS2 (MVS, MVS/SE, MVS/SP), DOS/VS, DOS/VSE, and VM/370 (VM, VME, VM/BSE, VM/SP) in conjunction with other systems software and programs.

IBM TSO (Time Sharing Option) • provides for timeshared option under all OS/DOS or communications/OS/DOS facilities.

□ Database Management

The product line can employ any of the following IBM software: Advanced Text Management System II; Airline Control Program; Customer Information Control System/VS; Information Management System/VS; Data Language/1 (DL/1); and Storage and Information Retrieval system (STAIRS). These database managers are described in report 950-I048-3270.

□ Communications/Networks

As previously mentioned, the controllers run under BTAM, BTAM-ES, TCAM, ACF/TCAM, VTAM, ACF/VTAM, and ACF/VTAME. In addition, the system may also make use of IBM's Conversational Monitor System; Display Information System; Generalized Information System; Structured Information Facility; and Virtual Storage Personal Computing. See report 950-I048-3270 for a description of these packages.

□ Application Development Aids

The vendor offers no application development aids; users, however, may employ IBM's Processors Disclose Mode; Script; Visual Data Entry Online routines; and the Graphical Data Display Manager and Presentation Graphics Feature.

□ Other Facilities

IBM S/360, S/370, 3030, 3081 & 4300 Processors

Again, users may employ any of the following IBM facilities: Display Exception Monitoring; Device Independent Display Operator Console Support; Network Problem Determination Application; and Interactive Instruction system. These are also described in report 950-I048-3270.

■ HARDWARE

□ Terms & Support

Terms • purchase-only basis from AT&T Teletype with leasing available through independent third-party vendors • OEM plans available • maintenance available and billed monthly from AT&T Teletype.

Support • rendered from AT&T Teletype field offices at varying monthly rates based on user location • rates shown in this report are maximum maintenance costs.

□ Packaged Components/Overview

The AT&T Teletype 5540 system is comprised of 2 models of cluster controllers, 3 models of display terminals, and 3 models of printers. All are IBM 3270 compatible.

The cluster controllers consist of the 5544 and 5546, both of which are IBM 3274 (C-Type) and 3276 compatible. The AT&T Teletype units, like their IBM counterparts, support BSC and SNA/SDLC protocols. The 5544 is a floorstanding unit. Available in 2 models, one accommodates up to 16 displays/printers; the other supports 32. Unlike IBM, however, these controllers do not allow any mix of displays and printers. The 5544 supports a maximum of 8 printers.

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The 5546 is a tabletop controller supporting up to 12 devices. This unit, too, is available in 2 versions: one attaching 6 displays/printers and the other, 12. These controllers are limited to 3 printers.

Both controllers operate under the direction of software stored on 5.25-inch dual diskettes. System configuration, attached device addresses, and controller poll/select addresses are maintained on diskette and can be modified from the keyboard. The communication protocol is also contained on the diskette, making the shift from BSC to SNA/SDLC communication as simple as changing the diskette.

The 3 display terminals are also IBM 3270 compatible and replace the 3278. Models 5548-12 and 5548-25 are IBM 3278-2 compatible. Model 5548-12 differs from the 5548-22 only in display screen size: 12-inch diagonal versus 7 or 13 inches for the 5548-22. The third terminal is the 5548-25, which replaces the 3278-2 through -5. This terminal can display 1920 or 3564 characters formatted at 24 or 27 lines by 80 or 132 columns.

While 3 classes of terminals exist, AT&T Teletype offers 6 different versions. The difference lies in the keyboard style selected by the users. Two keyboard styles are available; both employ a typewriter-style layout. One, however, is a low-profile unit (30 mm) while the other at 70 mm is a high-profile model.

In addition to these new keyboard-display units, AT&T Teletype also offers 4540-class displays for the 5540. While these displays provide only a 1920-character screen capacity, they are available with 5 different keyboards with different key layouts and features (such as a magnetic badge reader) not available with 5548 displays.

Two classes of printers are offered for the 5540: character and line. The line printers are full-character belt printers with print speeds of 220 or 300 lpm. Both 80- and 132-column versions are offered. The character printers are wire matrix printers offered in 30-cps and 200-/340-cps versions. Both printers use tractor feed and print 132 columns.

All displays and printers connect directly to the cluster controllers. The displays and character printers may be located up to 5,000 feet away, while the line printers are limited to 2,000 feet. The cluster controllers interface with the host processors via switched or dedicated lines at speeds up to 9600 bps. Both BSC and SNA/SDLC protocols and ASCII/EBCDIC codes are supported. The DTE/DCE interface is RS-232C.

□ Controllers

AT&T Teletype provides a floorstanding controller (Model 5544) and a tabletop controller (Model 5546), the equivalent of IBM 3276 and 3274 C-type remote cluster controllers. The 5544 is offered in versions that accommodate 16 or 32 displays/printers; the 5546 is also available in 2 versions, one supports 6 displays/printers and the other, 12. AT&T Teletype permits the smaller units within a class to be field upgraded to the larger units. All terminals and printers are attached via 4-wire twisted pairs, coaxial cable or both, and can be mixed within the same cluster. Display and character printers can be positioned up to 5,000 feet from the controller; line printers up to 2,000 feet.

Both controllers are remote units and support SNA/SDLC and BSC protocols. Protocol handling and support software are stored on a 5.25-inch dual diskette. To switch protocols, the user need only interchange diskettes. Internal processing operations are supported by multiple 16-bit microprocessors. Device addresses, operating configurations, and a printer authorization matrix are also on the diskette and are easily altered.

5546-31A Cluster Controller • tabletop control unit accommodates 6 displays/printers; 3 printers maximum, single display minimum • 16-bit microprocessor for internal processing and communication • 348K-byte RAM • SNA/SDLC and BSC protocols • 2000- to 9600-bps transmission rates:

\$4,500 prch	\$30 maint
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5546-31 SB Cluster Controller • same as 5546-31A except supports 12 displays/printers with same limitations:

4,742	31
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5544-31 SA Cluster Controller • floorstanding control unit

accommodates 16 displays/printers; 8 printers maximum, single display minimum • 16-bit microprocessor for internal processing and communication • 348K-byte RAM for basic microprocessor operations; up to 256K-byte RAM for device handling • SNA/SDLC and BSC protocols • 2000- to 9600-bps transmission rates:

7,150	33
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5544-31 SB Cluster Controller • same as 5544-31 SA except supports 32 displays/printers with same limitations:

11,500	34
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□ I/O Channels

5544/5546-to-Processor Attachment

Both cluster controllers attach to the remote host processor via communication facilities to channel-connected control units/adapters. On the S/360, S/370, 3030, and 4300 processors the attachment is via the 2701 Data Adapter Unit, 2703 Transmission Control, or 3704/3705. On the S/370 Models 115, 125, 135, and 138 connection is via the Integrated Communications Adapter; the Communications Adapter is used on the 4331.

5544/5546-to-Terminal Device Attachment

Display stations and printers attach directly to the controllers via terminal adapters. AT&T Teletype offers controllers with fixed numbers of adapters (see Controllers). Additional adapters can be added in the field. Both controllers allow the display stations and character printers to be located up to 5,000 feet from the controller; the line printers can be located 2,000 feet from the controller.

□ Communication

The 5544 and 5546 cluster controllers communicate with the remote host processor via half-/full-duplex data transmission over point-to-point or multipoint, switched or dedicated lines at speeds up to 9600 bps. Protocols are BSC or SNA/SDLC. An RS-232C interface connects the cluster controller to DCE. Host processors and interfaces are: S/360, S/370, 3030, 3081, and 4300 via a channel-attached 2701, 2703, 3704, or 3705 communication processor or front end; S/370 Models 115, 125, 135, 138 via integrated adapters. A single host processor can be attached.

Data transmission is bit serial ASCII (BSC only) and EBCDIC (BSC, SDLC). Communication parameters are established via keyboard commands from the display console and stored on the controller diskette. In an SNA environment, the controllers are FID Type 2; PU Type 2; LU Type 1, 2, 3; Function Management (FM) Profile 0, 3; and Transmission Subsystem (TS) Profile 1, 3.

□ Diskette

Both controllers employ an integrated dual diskette which stores system configuration tables and utility software. Each diskette has a capacity of 410K bytes, for a total capacity of 820K bytes per drive. Users can modify the contents of the diskette from the display station keyboard, and can create duplicate copies of the configuration or develop multiple configurations which can be loaded into the cluster controller as the processing needs dictate. The diskette cannot be used for any other function, such as local storage for housing applications.

AT&T Teletype permits the user to copy the system configuration table from one diskette to another. And, since the system contains 2 diskettes, copying can be done without alternately loading and unloading diskettes, as is the case with single-diskette systems like Lee Data's 300/400 and Racal-Milgo's 4270/4276.

□ Terminals/Workstations

AT&T Teletype offers 3 different terminals for attachment to either controller. Models 5548-12 and -22 are direct replacements for

PRCH: purchase price. **MAINT:** monthly maintenance charge for local service. **NC:** no charge item. *Prices effective as of June 1984. All prices are single quantity purchase.*

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the IBM 3278-2, and differ only in screen size. Model 5548-12 contains a 12-inch diagonal screen, while Model 5548-22 is available with a 7- or 13-inch screen. Physically, the 5548-12 is slightly smaller, measuring 15.63x16.75x13.25 (HxWxD) versus 16x16.63x14.67 inches for the 5548-22. Model 5548-25 with its 1920-/3564-character display formatted at 80/132 columns x 24/27 lines can replace the IBM 3278-2 through -5 display stations. All terminals can be located up to 5,000 feet from the controller and can attach to the controller either through 4-wire twisted pair or coaxial cable.

In addition to the above terminals, AT&T Teletype keyboard-display units for the Model 4540 can also be attached. Those terminals are 3278-2 types that display 1920 characters and can be ordered with any of the 5 keyboards available for the 4540.

Model 5548-12, -22 & -25 Displays

Configuration • microprocessor-controlled, tabletop displays with modular detached keyboard and monochrome screen • cluster-display stations employed with Teletype 5544/5546 controller • interface to cluster controller • 12-foot modem cable.

Display • 12-inch (Model 5548-12) and 7-/13-inch diagonal (Models 5548-22 and -25) • 7x9 dot matrix; 5x7 dot matrix with 132-column lines • 96 EBCDIC/ASCII character set • 1920 characters with 24-line x 80-character format (Models 5548-12 and -22); 3564 characters with 27-line x 132-character format (Model 5548-25).

Edit & Format Features • cursor up, down, left, right, home; block, underline, and blink/nonblink cursor • erase input/screen/EOF/unprotected fields • tab forward/backward; program tab • backspace • protected/numeric fields • cursor address write • character insert/delete • highlighted (intensified) character • nondisplayed data • n-key rollover • selector light pen field select • 24 programmable functions (12 shiftable keys); 2 program attention keys.

Communications • via controller; see Communications section for details.

Peripherals • selector light pen • printer; attached via controller.

T5 High-Profile Keyboard • 87-key typewriter-style keyboard with 24 programmable functions • 12-degree stepped key-row profile (70 mm) • included in Models 5548-12TA, -22TA, -25TA.

T5 Low-Profile Keyboard • 87-key typewriter-style keyboard with 24 programmable functions • 5-degree stepped keyrow (30 mm) • included on Models 5548-12TF, -22TF, -25TF.

5548-12TA Keyboard-Display • 12-inch CRT • 1920-character display capacity • low-profile keyboard:
\$1,633 prch \$12 maint

5548-12TF Keyboard-Display • 12-inch CRT • 1920-character display capacity • high-profile keyboard:
1,817 12

5548-22TA Keyboard-Display • 7- or 13-inch CRT • 1920-character display capacity • low-profile keyboard:
2,067 12

5548-22TF Keyboard-Display • 7- or 13-inch CRT • 1920-character display capacity • high-profile keyboard:
2,250 12

5548-25TA Keyboard-Display • 7- or 13-inch CRT • 1920-/3564-character display capacity • low-profile keyboard:
2,817 12

5548-25TF Keyboard-Display • 7- or 13-inch CRT • 1920-/3564-character display capacity • high-profile keyboard:
3,000 12

Selector Light Pen • field selects from displayed data; available on all keyboard displays:
NC NC

Printers

Character and line printers can be attached to either controller. Printers utilize the AT&T Teletype Standard Serial Interface (SSI)

signaling method for communication with the controllers, and operate with data streams in IBM 3270 Data Stream Compatibility (DSC) format, Logical Unit Type 3, or SNA Character String (SCS) format, LU Type 1. The printers connected to the 5544 controllers interface with host software supporting IBM 3287/3289 printers. Individual line printers can be located up to 2,000 feet from the controller; character printers up to 5,000 feet.

Printers can be configured to operate in local mode, system mode, and shared mode. In local mode, the printer can be used for off-line print functions only. Data is transferred from the display station to the printer. In system mode, the printer is entirely under control of the host processor and cannot be used by the local operator. In shared mode, the printer can be addressed by the host or the local operator, but obviously not at the same time.

The line printers are full-character, impact belt printers which print 10 cpi and 6 lpi. Forms handled can be from 4 to 9.5 or 15 inches wide and 3.75, 5.5, or 11 inches long. The low-speed matrix character printer prints 10 cpi and 6 lpi, and handles forms 3 to 15 inches wide and 11 inches long. The high-speed matrix character printer prints 5, 10, or 16.7 cpi and 6/8 lpi. Forms handled are 3 to 16 inches wide, and 3, 3.5, 4, 5.5, 6, 7, 8, 8.5, 11, 12, or 14 inches long.

4011-3BXO Full-Character Belt Printer • 220- or 300-lpm tabletop printer • monospace EBCDIC • 80-column friction feed:
\$3,973 prch \$28 maint

4011-4GXO Full-Character Belt Printer • same as 4011-3BXO except employs tractor feed:
4,208 28

4011-4AXN Full-Character Belt Printer • 220- or 300-lpm floorstanding printer • monospace EBCDIC • 80-column tractor feed • forms access:
4,785 28

4011-4LXO Full-Character Belt Printer • 220- or 300-lpm tabletop printer • monospace EBCDIC • 132-column tractor feed:
5,170 30

4504-1CEF Full-Character Belt Printer • 220- or 300-lpm floorstanding printer • monospace EBCDIC • 132-column tractor feed • ribbon re-inker • paper-jam preventor:
5,595 30

4011-3EXO Full-Character Belt Printer • 220- or 300-lpm tabletop printer • upper-/lowercase EBCDIC • 80-column friction feed:
3,973 28

4011-4JXO Full-Character Belt Printer • same as 4011-3EXO except has tractor feed:
4,208 28

4011-4DXN Full-Character Belt Printer • same as 4011-4JXO except is floorstanding and has forms access:
4,785 28

4011-4MXO Full-Character Belt Printer • 220- or 300-lpm tabletop printer • upper-/lowercase EBCDIC • 132-column tractor feed:
5,170 30

4504-1CFF Full-Character Belt Printer • 220- or 300-lpm floorstanding printer • upper-/lowercase EBCDIC • 132-column tractor feed • ribbon re-inker • paper-jam preventor:
5,595 30

45AP201AAA Matrix Printer • 200- or 340-cps tabletop, bidirectional 4x7 dot-matrix printer • upper-/lowercase EBCDIC • 132-column tractor feed:
3,868 32

45AP102AAA Matrix Printer • 30-cps floorstanding, bidirectional 4x7 dot-matrix printer • upper-/lowercase EBCDIC • 132-column tractor feed • ribbon re-inker:
2,498 17

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