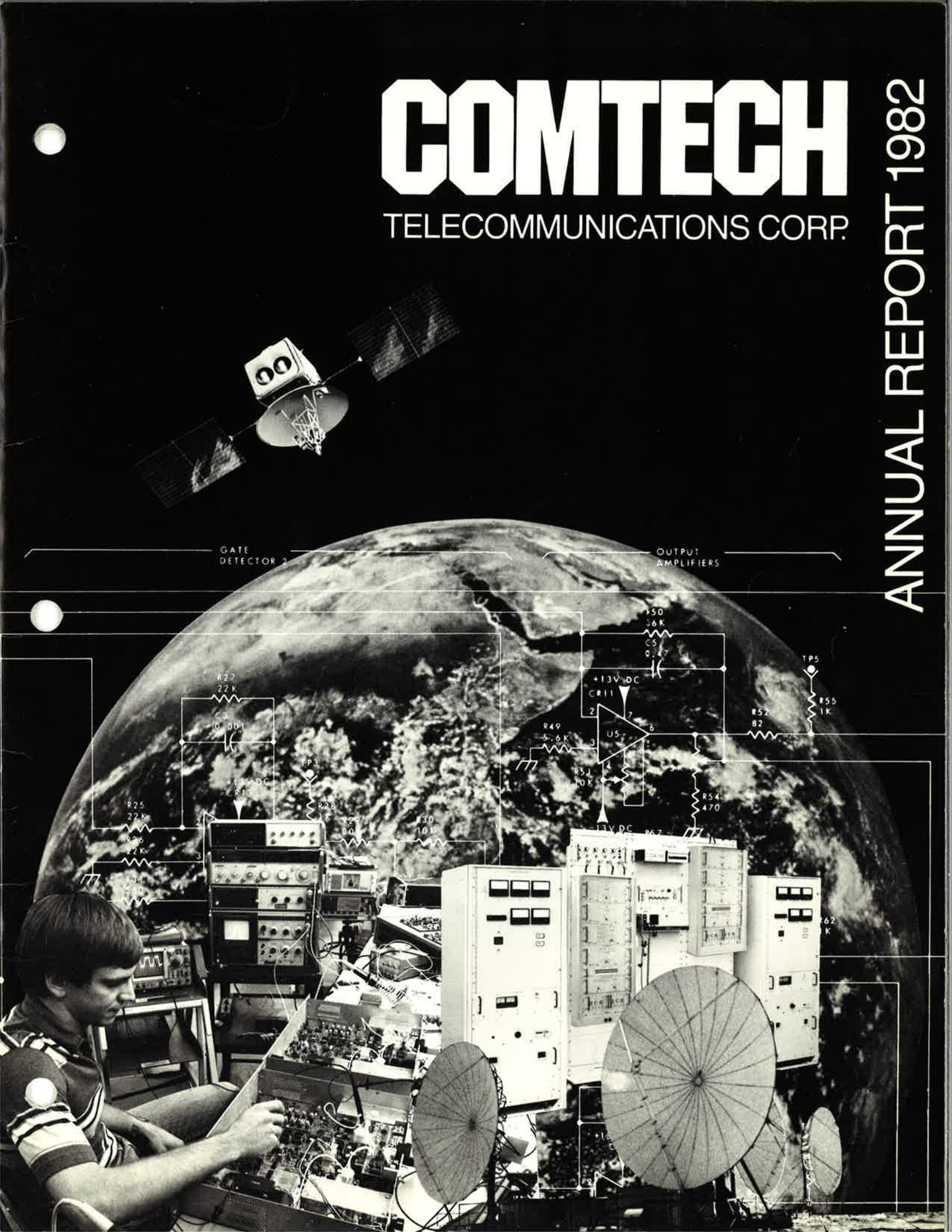


# COMTECH

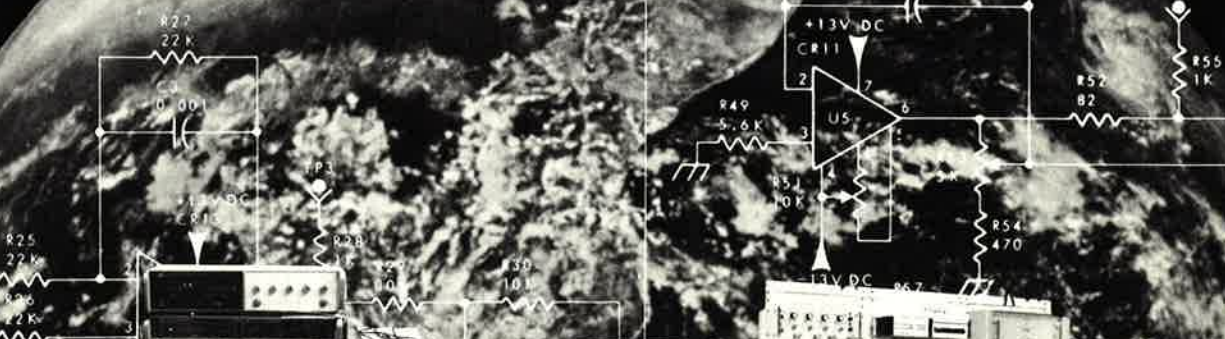
TELECOMMUNICATIONS CORP.

ANNUAL REPORT 1982



GATE  
DETECTOR 2

OUTPUT  
AMPLIFIERS



**Comtech Telecommunications Corp.**  
**Selected Financial Data**

(000's omitted, except for per share amounts)

Year Ended July 31,	1982	1981	1980	1979	1978
<b>Selected Statement of Income Data:</b>					
Net sales .....	<u>\$33,487</u>	<u>\$31,669</u>	<u>\$ 25,221</u>	<u>\$30,496</u>	<u>\$24,103</u>
Pre-tax income (loss) from continuing operations before non-recurring items .....	<u>\$ 2,415</u>	<u>\$ 2,334</u>	<u>\$(14,814)</u>	<u>\$ 1,736</u>	<u>\$ 2,343</u>
Non-recurring items .....	<u>\$ 248</u>	<u>\$ —</u>	<u>\$ —</u>	<u>\$ —</u>	<u>\$ —</u>
Income (loss) from continuing operations .....	<u>\$ 1,499</u>	<u>\$ 1,188</u>	<u>\$ (9,883)</u>	<u>\$ 992</u>	<u>\$ 1,451</u>
Loss from discontinued operations .....	<u>(143)</u>	<u>(579)</u>	<u>(787)</u>	<u>(51)</u>	<u>(306)</u>
Extraordinary credit .....	<u>1,024</u>	<u>585</u>	<u>—</u>	<u>—</u>	<u>—</u>
Net income (loss) .....	<u>\$ 2,380</u>	<u>\$ 1,194</u>	<u>\$(10,670)</u>	<u>\$ 941</u>	<u>\$ 1,145</u>
<b>Earnings (loss) per share:</b>					
Income (loss) from continuing operations .....	<u>\$ .40</u>	<u>\$ .32</u>	<u>\$ (2.83)</u>	<u>\$ .27<sup>(1)</sup></u>	<u>\$ .41<sup>(1)</sup></u>
Net earnings (loss) .....	<u>\$ .64</u>	<u>\$ .33</u>	<u>\$ (3.06)</u>	<u>\$ .26<sup>(1)</sup></u>	<u>\$ .32<sup>(1)</sup></u>
<b>Selected Balance Sheet Data:</b>					
Current assets .....	<u>\$13,707</u>	<u>\$19,125</u>	<u>\$ 17,393</u>	<u>\$19,289</u>	<u>\$11,132</u>
Current liabilities .....	<u>8,087</u>	<u>11,865</u>	<u>13,774</u>	<u>11,801</u>	<u>4,064</u>
Working capital .....	<u>\$ 5,620</u>	<u>\$ 7,260</u>	<u>\$ 3,619</u>	<u>\$ 7,488</u>	<u>\$ 7,068</u>
Total assets .....	<u>\$19,679</u>	<u>\$24,843</u>	<u>\$ 27,075</u>	<u>\$30,357</u>	<u>\$18,236</u>
Long-term debt, including current maturities .....	<u>\$ 6,323</u>	<u>\$12,176</u>	<u>\$ 13,134</u>	<u>\$ 2,807</u>	<u>\$ 2,889</u>
Shareholders' equity .....	<u>\$ 5,625</u>	<u>\$ 2,854</u>	<u>\$ 1,241</u>	<u>\$11,771</u>	<u>\$10,700</u>

(1) After giving retroactive effect to a 100% stock distribution declared March 4, 1980.

There have been no cash dividends declared on the Company's Common Stock.

This Selected Financial Data should be read in conjunction with the Notes to Consolidated Financial Statements and Management's Discussion and Analysis of Financial Condition and Results of Operations.

**Cover**

The lower right corner of the front cover shows Comtech Government Systems Division's fixed configuration tropospheric scatter terminal installed at one end of a communications link in Papua New Guinea. Below the terminal is a transportable tropospheric scatter site installed in a mid-east country. The lower left corner of the cover shows a test technician performing final alignment on a Model M500C Broadband Modulator—Demodulator manufactured by Comtech Data Corporation. The background photo is a view of the Earth as photographed by the Apollo 17 crewmen as they travelled toward the moon on their NASA lunar landing mission.

**The Company**

Comtech Telecommunications Corp. (Stock Traded—OTC, NASDAQ, Symbol—CMTL) is engaged principally in the design, development, manufacture, and installation of satellite communication earth stations, tropospheric scatter networks and terrestrial line-of-sight microwave communication systems as well as related digital and analog products for digital business, message, telephone, facsimile, and video transmission.

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Inside Back Cover:

Corporate Directory and Other Data

## To Our Shareholders and Employees:

Without question, Comtech has come a long way!

... In February, the United States Army Contract Adjustment Board granted our petition and authorized a \$17.5 million price increase in Comtech's medium terminal satellite communications contract.

... As part of the same decision, the Contract Adjustment Board authorized a \$4.1 million long-term loan, repayable on favorable terms beginning in June 1984.

... Following its recent receipt of the loan funds, Comtech prepaid the balance of its secured bank loan—which only this March had been as high as \$8.7 million.

... As a result, the government loan is now Comtech's sole borrowing, apart from modest plant mortgage indebtedness.

... Comtech is presently negotiating new banking relationships which we expect will make available a substantial working capital line of credit and letter of credit facility.

But there is more to the picture than renewed financial strength.

... We have created and are expanding a new operating team headed by George A. Reed, who has been President and Chief Operating Officer since May. In July, a highly-experienced Chief Financial Officer, Herman Bergman, came on board.

... We have completed a major reorganization of Comtech's operating units, designed in part to increase the proportion of business done in the commercial and international segments of our markets—areas in which we expect to see dramatic growth in the years ahead.

... Comtech recently was awarded a \$9.6 million U.S. Army contract with significant options potential, demonstrating the government's confidence in us and underscoring our expectations for U.S. defense procurement and our determination to pursue government programs aggressively.

... Comtech's Board of Directors has been enlarged to include George A. Reed, our new President, and Jacob M. Schein, Chairman and Chief Executive Officer of Henry Schein, Inc. Mr. Frank Marx retired from the Board and we thank him for his important contributions during very difficult times.

In all, Comtech has been in a rapidly moving and exciting period, and is approaching the future with renewed resources, capabilities and dedication—aggressive and resilient, but wiser for the experiences of the last few years.

### Beyond the Financial Statistics

Last year's financial statistics are reported and discussed elsewhere in this Annual Report as is other information about Comtech. There are, however, a few matters we would like to highlight for you.

Despite the difficulties encountered during the past few years, Comtech never lost sight of the importance of expanding and refining its product lines and enhancing its market positions. Now, given the renewed resources with which we can address these twin essentials, we plan to do much more.

Last year Comtech spent approximately 4% of sales or \$1,258,000 for company sponsored research and development, up from \$505,000 during fiscal 1981. We have budgeted an increase to \$1,500,000 for the current fiscal year. Of course, our people are focusing their efforts on cost reduction and product improvement as well as new product development.

Recently, Comtech opened a Washington, D.C. office to pursue further the domestic commercial and government market. We also established an office in West Germany to confirm our presence in Europe and to provide additional active support to our European customers. This is all part of our program of doing a better job of getting to know our customers and potential customers—and their problems—and becoming part of their solutions.

### Comprehensive Restructuring of Operating Units

With the completion of our comprehensive restructuring of Comtech's operating units, we believe there exists the framework and environment necessary for heightened product excellence and increased market penetration. Our basic organization is now comprised as follows:

#### *Comtech Data Corporation*

Comtech Data Corporation, our Arizona-based subsidiary, has been assigned total responsibility for addressing the domestic commercial satellite market for the entire company. Adding this important leadership role enhances Comtech Data's significance to the company and, we anticipate, will allow us to build upon Comtech Data's many successes in the design, development and manufacture of digital satellite, cable TV and specialized network communications for commercial customers here and abroad.

This move also gives recognition to Comtech Data's marketing strengths, as well as the outstanding reputation of its engineering team. The sharpened product focus of the continuing operations of our Comtech Antenna subsidiary has been placed in the hands of Comtech Data's management.

#### *Comtech Government Systems*

Comtech Government Systems, which formerly was known as Comtech Laboratories, will now concentrate its activities on the design and manufacture of telecommunications systems and equipment for government and defense needs in the U.S. and abroad, and be solely responsible for all international activities of the Company.

A rapidly growing derivative market for Comtech Government Systems satellite and troposcatter technology is the C<sup>3</sup>I Sector, the Command, Control, Communications and Intelligence segment of the U.S. defense effort. Here our capabilities would assist the military in developing a reliable communications system which resists enemy interruption while using electronic eavesdropping means to capture the enemy's messages. This represents an addition to the demand for troposcatter systems and equipment for the U.S. military as well as for governments in various parts of the world.

#### *Comtech Microwave Corp.*

Comtech Microwave Corp., which previously operated as a division of Comtech Government Systems, is continuing to design and manufacture state-of-the-art low noise parametric amplifiers for satellite and troposcatter communications systems for both government and commercial applications over a frequency spectrum from 4 to 30 GHz. Comtech Microwave's newly developed series of Ku frequency band amplifiers, among other new products, is expected to generate a great deal of excitement, as is its new C-Band extended frequency band amplifier which recently was ordered by COMSAT for operation with the new INTELSAT VI series of satellites.

With distinct pleasure and understandable pride, we salute the many talented, resourceful and loyal members of Comtech's extended family who have been helping to make all of this happen. At the same time, we acknowledge our keen awareness of just how much remains to be done in order to build an enterprise that will reach our targeted growth and profit levels. This gap cannot be minimized. With this in mind, a principal objective now is to expand upon last year's accomplishments.



Fred Kornberg,  
Chairman of the Board  
and Chief Executive Officer



George A. Reed,  
President and Chief  
Operating Officer

October 20, 1982

At annual Shareholders meetings, and during the course of a year, Shareholders and others address a variety of questions to management.

Here are responses by Fred Kornberg, Chairman of the Board and Chief Executive Officer; George A. Reed, President and Chief Operating Officer; and Herman Bergman, Senior Vice President Finance and Chief Financial Officer, to questions that may be of interest to you.



*George A. Reed, President and Chief Operating Officer; Fred Kornberg, Chairman and Chief Executive Officer; and Herman Bergman, Senior Vice President, Finance & Administration and Secretary.*

**Mr. Kornberg, there is a sense that Comtech has significant growth expectations for the next few years. How do you plan to achieve this?**

*Mr. Kornberg:* "We see some specific areas for internal growth prospects which are available to us:

—The Government Communications Systems Marketplace. We expect to be able to penetrate deeper into the growing markets of satellite, tropospheric and terrestrial communications and we also expect to diversify into the ASW and C<sup>3</sup>I sectors of commu-

nications. For your information, ASW stands for Anti-Submarine Warfare, and C<sup>3</sup>I stands for Command, Control, Communications, and Intelligence; a term used by Department of Defense to describe a segment of the U.S. defense effort.

—The Commercial Communication Systems Marketplace. Here, we will try to broaden our scope and become an important force in satellite communications for commercial telecommunication applications in the U.S. domestic market for systems and equipment in the satellite business data earth station area, broadcast earth stations, for video and audio, and specialized business data networks in the satellite business terminal technology area.

—The International Communication Systems Marketplace. We expect this area to provide growth opportunities for all of our Comtech companies. We expect to capture our share of the worldwide market resurgence of tropospheric scatter communications requirements with our third generation tropo terminal design which utilizes our new digital pre-detection combiner. We also expect to participate worldwide in the new INTELSAT IV earth station requirements with some of our newly developed products.

—And then there is growth through acquisitions."

**What kind of acquisition is Comtech looking for?**

*Mr. Kornberg:* "In order to meet our growth objectives for the next five years, we are seeking situations which will provide allied technology to contribute to both our sales and profit growth."

**Could you be more specific as to the type of company and product and size of company you are looking for?**

*Mr. Kornberg:* "We are looking for companies in the \$5 to \$10 million volume range in such areas as microwave components, communication test equipment, time division multiplexing, and similar related products which will fit in with our overall product mix and provide entry into additional market areas and possibly also give us some vertical integration. In this respect, we would also be interested in companies with products in the high frequency communications area, in the anti-submarine warfare area, and companies with technology and product in the Time Division Multiple Access (TDMA) Systems area."

**How do you fit into the Anti-Submarine Warfare Defense Market?**

*Mr. Reed:* "A fast growing segment of the Federal Defense Budget for the next five years is probably going to cover expenditures for research as well as production funds for equipment pertaining to underwater acoustics. The objective in Anti-Submarine Warfare is first of all to locate a target submarine and then to destroy it. Obviously therefore, our government is interested in developing improved search and communications systems in the area of underwater acoustics. The propagation and processing of data transmitted in the waters of our oceans is very similar to Comtech's technology in the tropospheric scatter communications area and has similar characteristics of signal fading. Therefore, we believe that we can

play an active role in the ASW communications portion of the marketplace."

**What is the present situation in the market for troposcatter communications equipment?**

*Mr. Reed:* "Troposcatter systems provide a relatively high level of security for defense applications and are ideally suited for installations where the earth terrain makes other forms of communications impractical. We see market potential coming from the U.S. Military, certain NATO nations, countries in the Middle East, Africa, and South America. There are also numerous applications of a commercial nature such as oil company communications between off-shore drilling rigs, and in third world emerging countries who have need for modern telephone communications systems."

**What steps have you taken to intensify your marketing activities?**

*Mr. Reed:* "We have been adding marketing staff in all divisions. A Washington, D.C. office, and a European marketing office in West Germany have been opened recently. They will serve all our divisions."

**How do you feel about Comtech Data Corporation's growth potential?**

*Mr. Reed:* "Frankly, we feel that Comtech Data is presently only beginning to reach its potential. The domestic demand for Comtech Data's satellite communication products should really begin a rapid growth curve when satellite earth stations at corporate facilities begin delivering telephony, facsimile and digital data business information to

thousands of offices throughout the country. We also see the continuation of the cable TV and broadcast markets bringing entertainment to an even greater extent to hotels, condominiums and private houses."

**Where does the Comtech Antenna Corp. stand?**

*Mr. Kornberg:* "We have carefully defined its place in the market. We have refined our Comtech Antenna product lines to what we believe are the finest fiberglass steerable 3, 3.8 and 5 meter antennas with excellent surface tolerance for application in both C-band and Ku-band video, audio broadcast or data transmission systems."

**Comtech recently received a very substantial adjustment in its Army contract via an award from the Army Contract Adjustment Board. Do you think the granting of the award will adversely affect Comtech's ability to get future business from the Government?**

*Mr. Kornberg:* "No. To the contrary. Subsequent to the award, Comtech has already received a major contract for \$9.6 million for a digital microwave receiving and transmitting radio set from the U. S. Army. We read this as a clear indication of the confidence in Comtech and its ability to perform on a major contract."

**What is Comtech's backlog?**

*Mr. Bergman:* "As of July 31, 1982 our backlog was approximately \$35,268,000, of which 63%, or approximately \$22,900,000, was represented by two contracts with the U. S. Government. Approximately 70% of the July 31, 1982 backlog is scheduled to be recognized as sales during the fiscal year ending July 31, 1983."

**How do you view Comtech's financial resources?**

*Mr. Bergman:* "I believe that they are greatly improved as shown in the comparison of our July 31, 1982 Balance Sheet to that of other prior years. We are also currently in the process of negotiating new lines of credit to provide additional working capital for future growth."

**What about Comtech's technological capabilities?**

*Mr. Kornberg:* "We operate in various technologies within our corporate structure.

Comtech has been and continues to be the clear leader in cryogenic low noise parametric amplifier technology. However, cryogenic solutions for the attainment of low noise parametric amplification, because of greater satellite power, are now only being used in those sophisticated communications systems requiring the ultimate in low noise amplification. This has substantially curtailed the market for our original leading technology which represents only about 10% of our annual revenues.

We are at the forefront in a number of technology areas. Among others, these include one of the finest lines of communications modems for application in satellite, microwave, troposcatter, cable, and wire systems. These modems include very powerful coding fast becoming a standard in the industry, and a data-over-voice bridge between digital computer and analog radio technologies.

We believe we are a leader in low phase noise synthesized phase-locked oscillators used in communications systems requiring error free wideband data transmission. These are used in strategic and tactical government satellite systems and commercial SCPC and TDMA systems for use with satellite transmission.

We believe our advanced tropospheric scatter radio set design, including our pre-detection combiner, is a leader in the field.

These are just a few examples of our technological strengths."

**Comtech obviously had encountered serious difficulties during the last few years. During those troubled times, some turnover of personnel occurred. What is the situation today?**

*Mr. Reed:* "Some of the people who left have decided to return to Comtech. We have also been able to attract new senior executive people to our company such as, Martin Popelsky, Vice President of Operations, Andre Gluck, Vice President of Engineering, and Charles Olson, Vice President New Business, at our Government Systems Division. Al Scharf joined as Director of Analogue Transmission of our Comtech Data subsidiary and Herman Bergman joined our corporate staff as Senior Vice President of Finance and Administration."

**How many employees does Comtech have and what do they do?**

*Mr. Reed:* "We presently have 564 employees, 174 in engineering design and related activities; 264 are production people; and the balance of 126 are engaged in various administrative, sales, clerical and other functions. Because of the mix of business, including large government contracts at Comtech's Government Systems Division, the number of production people normally fluctuates up or down in the range of 10 to 25 percent based on the manufacturing workload. The engineering, administrative, sales and clerical personnel level of employment tends to be more stable."

Comtech Government Systems Division, which was known as Comtech Laboratories, is the largest of Comtech's operations. Located in Hauppauge, New York, this Division occupies 122,000 square feet of plant space and employs over 350 people. The Division's activities are concentrated in the design, manufacture, and installation of microwave, satellite, and tropospheric scatter communication equipment and systems for government defense and international applications.

Comtech's well established credentials as a supplier of advanced communications equipment to the domestic and international common carriers provided the entree to the U.S. and overseas defense markets. Our experience as a supplier to the U.S. Government began in the early 1970's under a contract calling for the design and installation of a turnkey digital earth terminal operating in the X-Band frequency range.

During the same period, Comtech also provided low-noise cryogenically cooled X-Band amplifiers used in the "Hot Line" satellite link between Washington and Moscow. Under subsequent production and design contracts, the Company delivered quantities of Comtech designed frequency conversion subsystems to upgrade existing U.S. Army AN/MS-46 strategic com-



*Assembly and Wiring Inspectors check AN/GSC-39(V) components during the manufacturing process.*

munications satellite terminals used as part of the Department of Defense Satellite Communication System (DSCS).

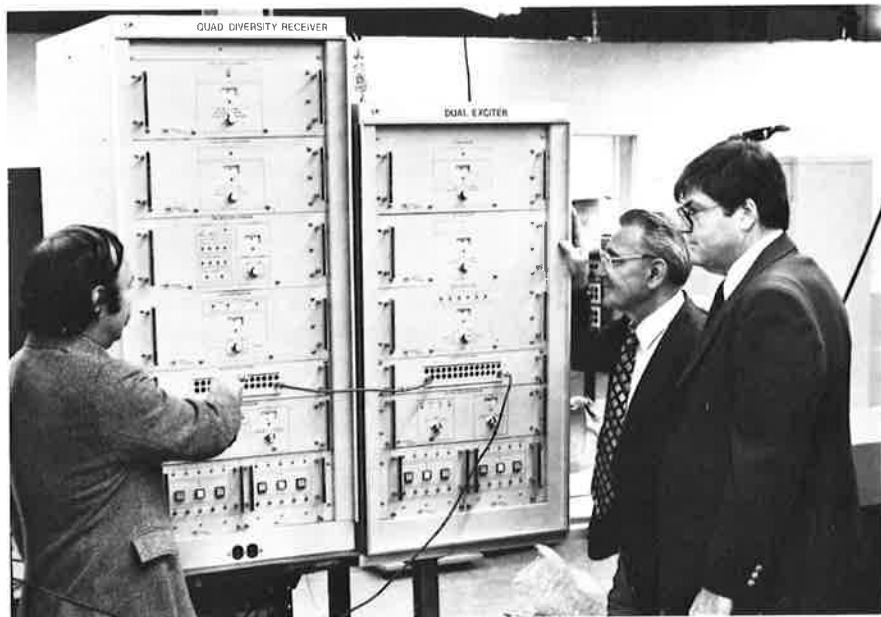
As a result of the outstanding performance and reliability demonstrated by these frequency converters, Comtech was subsequently asked to retrofit all U.S. Army strategic terminals such as the AN/MS-46, AN/TSC-54, AN/MS-60 ground satellite earth terminals deployed worldwide by the U.S. Army. These frequency converters were also selected to be incorporated in the initial manufacture of the U.S. Army AN/FSC-78 and AN/FSC-79 heavy terminals, as well as the

AN/GSC-39 (V) medium terminals currently being manufactured by Comtech for the U.S. Government.

The AN/GSC-39 (V) satellite ground terminals, for which Comtech has the full responsibility for manufacture, integration, and test, represent the latest design in strategic earth satellite terminal design in both fixed plant and transportable configurations as supplied to the DSCS.

Complementing the Company's satellite products, the Government Systems Division has developed a complete line of troposcatter communications equipment offering the highest levels of reliability and security particularly suited to defense and government communications. Comtech's troposcatter equipment also has commercial applications such as communication to off-shore oil rigs where over water transmission is required and/or areas where terrain variances prohibit the use of direct line-of-sight transmission. These systems can provide multi-channel telephone, teletype, digital data and television transmission for short to intermediate distances from 50 to 600 miles by reflecting the transmitted signal off the troposphere which is about 7 miles above the earth's surface.

Comtech's successes in the marketplace, subjected, however, from time to time by the economic envi-



*Joe Cool, John Kobi and Andre Gluck, Vice President of Engineering, verify performance of Digital Troposcatter Radio System.*



ronment, have provided the baseline from which the Company developed one of our industry's most complete line of reliable cost effective telecommunication system building blocks of equipment. Under the current realignment of the Company's operations, Government Systems will be able to concentrate more fully on refining these various building blocks and developing new products to meet the dynamic market changes anticipated in the coming years.

The Government Systems Division's thrust in the marketplace is in two key areas; the design and manufacture of state-of-the-art products for the defense and international communications marketplace, and the integration and installation of these products into

the DSCS system become more imminent. In response to this, Comtech's Government Systems Division has directed its product improvement and new research and development programs to those areas within which we feel superior technology will play the dominant part in maintaining competitive advantage.

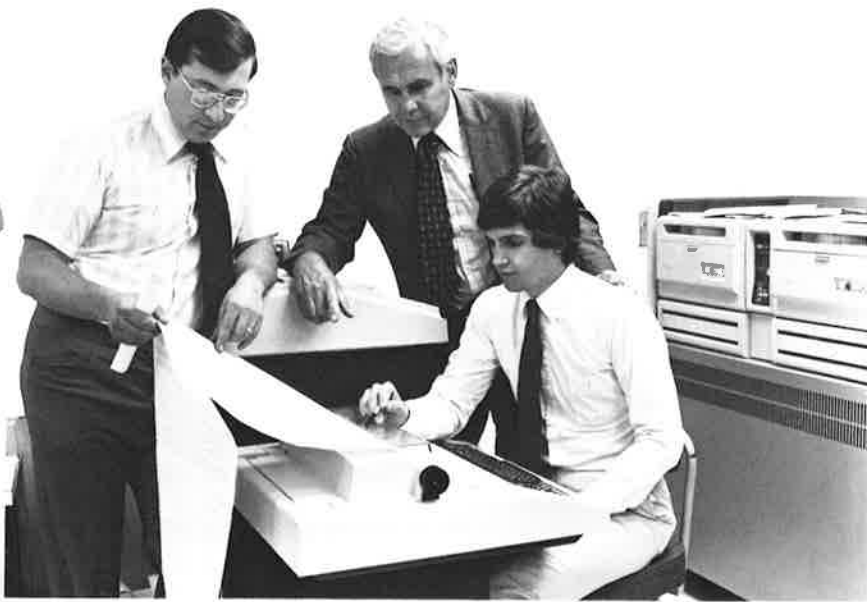
The future requirements for the DSCS system are clear. With the heavy-traffic, fixed-site satellite terminals in place, and the medium traffic terminals under contract, the next generation of satellite terminals will be concentrated in smaller, highly mobile configurations for tactical applications. Lighter, more compact equipment will be required. The use of high speed digital transmission techniques and signal

overall objective is the integration of strategic, tactical, logistics, and intelligence segments of the defense establishment into a uniform, highly automated system with optimum response capabilities. Communication equipment to meet these needs will reach new levels of sophistication. Such equipment will incorporate new interfaces compatible with existing and planned communication facilities, data processing, signal coding and decoding, signal analysis, and diagnostic equipment.

The exchange of error-free, high speed digital transmission is essential to the success of C<sup>3</sup>I, and is one of the areas where Comtech's Government Systems Division is concentrating.

The advent of C<sup>3</sup>I has placed considerable emphasis on high speed processing techniques to provide advanced coding and decoding of digitized transmissions. The Government Systems Division has dedicated facilities and personnel to address this area. They are currently developing both hardware and software that will provide a baseline for the development of products capable of coding and decoding digitized transmissions as well as equipment capable of processing and analyzing digital traffic of unknown origin.

Another critical element in the handling of error-free digitized communications signals is the local oscillator phase noise in the RF frequency conversion equipment. Comtech has recently completed development of a new generation of self-tuned radio frequency phase-locked oscillators offering maximum stability with extremely low phase noise providing a high level of immunity to digital communications signal perturbations. We believe these low phase-noise self-tuned phase-locked oscillators to be unmatched in the industry and look for their application in new systems as well as a means of upgrading existing systems. Although designed primarily for the Division's satellite earth station hardware, the technology involved is readily adaptable to troposcatter and terrestrial commu-



*Ron Baranello, Charles Olsen, Vice President New Business and Bob Grabowski discuss computer generated data analysis.*

completely unified cost effective systems. In addition, the Division serves as the Company's principal systems integration and installation manager for all major international government systems.

Despite a wide acceptance of the Division's products and services, communication requirements, particularly those of the defense community, are continually undergoing change. With the U.S. Government's increased emphasis on our defense posture, the longer range plans for improving and expanding

processing will become dominant, offering a higher level of security and greater information carrying capacities. In order to process this digital traffic, the radio frequency equipment employed must be highly stable and free of extraneous signal noise that may originate from both internal and external sources.

Related to these changes is a derivative and rapidly growing Department of Defense market known as C<sup>3</sup>I, Command Control, Communications, and Intelligence segment of the U.S. defense effort. The

*Tom DiCicco, Director of Product Development, Al Avallone and John Franco, evaluate performance of Troposcatter Digital Pre-Detection Combiner.*



*Bill Reuter and John Scala program Comtech's Microprocessor controlled Up and Down X-Band Frequency Converters using a Model PBT-711 Phase Burst Test Set.*

nication and other systems employing electromagnetic propagation.

The key element in the remote programming capability of these new converters is a Comtech designed microprocessor circuit which provides a critical interface for remote computer control. Although designed specifically for use with Comtech's new frequency agile phase-locked oscillators and frequency converter equipments, this microprocessor circuit is being adapted for application in other equipment and has been incorporated into Comtech's new, remotely programmable, 3 kw high power amplifier designed for government applications.

A product area where Comtech has long been a leader is in the frequency conversion equipment employed in the DSCS satellite terminals. Recent product developments reflect the potential continuation of that leadership—most notably with the Company's new remotely programmable UDC-731 and DDC-731 frequency converters. These units, highly compact in design, incorporate the frequency agile high stability, low phase noise oscillators previously described, with remote programming and control capabilities, keyboard entry, CRT display, and fault reporting. The units offer decided advantages over existing frequency conversion equipment in that the microprocessor capabilities can provide for simpler unattended operation, auto-

mated fault isolation and test, and reduced space requirements.

The increased use of digital communication techniques is not



*Martin Popelsky, Vice President Operations, and his staff review program schedules.*

restricted to satellite communications. The demand for this equipment is also evident in the markets for troposcatter systems. Comtech has made a significant contribution in this area with the design and development of a new maximal ratio pre-detection combiner. We believe this combiner to be in the forefront of effective digital troposcatter communications. The Company is presently under contract to study the feasibility of incorporating this unit in the AN/FRC-170 Digital Radio and Multiplex Acquisition System (DRAMA), the most advanced digital radio in the defense inventory. At a yet to be determined

date, DRAMA will serve as the vehicle to demonstrate the capabilities of this unique combiner.

The Government Systems Division has also developed a comprehensive line of highly compact terrestrial microwave and troposcatter equipment for operation in frequency bands from 1 to 5 GHz. The market for these systems has been ongoing, particularly overseas. Comtech's noticeably integrated capabilities makes it possible to address these markets with products, systems, and complete networks with compatible satellite, terrestrial, and troposcatter interface.

In another area, an independent but closely related industry has developed around underwater acoustics for the purpose of developing systems for detecting and locating

submarines. While less spectacular than many of the electronic systems, submarine detection is of critical importance and involves very sophisticated computer hardware and software. This is a promising new market and may prove to be one of the fastest growing segments of the Defense budget in the coming years. The problems encountered in this area for signal processing and communications are very similar to those experienced in troposcatter, and we are looking closely at the feasibility of utilizing some of our technology as an entree to this potentially strong market.

Comtech Data was formed as a wholly-owned subsidiary in March 1978 to specifically address the growing high technology demands for digital communication products and systems. The Company now occupies a 46,000 square foot facility in Scottsdale, Arizona and employs approximately 130 people including key personnel with demonstrated experience in the design, manufacture, and installation of digital communication systems and products. The talent available complements the overall existing systems and product capabilities of the Company while providing a greater degree of concentration in the development and marketing of special digital equipment.

At the time the Company was formed, it was becoming increasingly evident that future telecommunications systems would be predominantly digital. The growing use of satellite communications and the deregulation of the telecommunications industry brought new communications services to specific segments of the private sector, particularly the business community.

The transmission of digitized voice, data, or television offers an automatic and substantial increase in traffic handling capacity of the existing medium, be it transmitted over microwave, satellite, cable or wire. Coincidental with this are the high speeds at which information can be transmitted, further increasing information capacity for computer-to-computer transactions with minimal signal conditioning and interface equipment.

To address these new telecommunications opportunities Comtech Data's initial product development was centered on digital modulation and forward-error correction coding. Both of these are key to the efficient and accurate transmission of digital data via satellite. The technology involved was successfully extended to encompass other transmission media such as broadband coaxial cable and line-of-sight microwave.

The Company's engineering excellence is providing effective solu-

tions for difficult data transmission problems. The recently introduced Comtech 500 Series Broadband Modems help the local area broadband network (LAN) system user implement many transmission circuits simultaneously on a simple coaxial cable. Broadband modems were developed for distribution of high speed data (56KBPS to 10MBPS) bi-directionally over broadband cable networks for applications such as:

- remote computer graphics station-to-station processing
- data collection and processing
- process automation
- composite data streams for multiplexers
- digitized voice between PBX

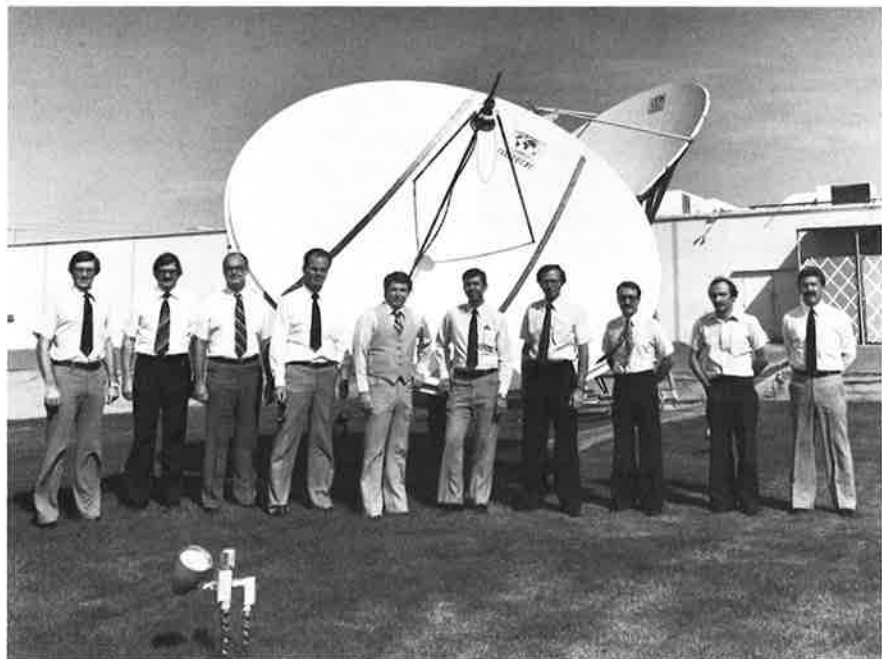
Some of the industry's heaviest users of microwave communication links have utilized Comtech's 700 Series Microwave Modems to upgrade their systems. To serve as a digital "bridge" for existing analog microwave systems, the Company designed modems capable of transmitting digital data on their microwave link and send both data and voice simultaneously without major equipment or system refurbishment on new network installation. Quadrature modulation allows 1.4

bits/Hz with data rates from 56 KBPS to 7 MBPS for high speed telemetry, data acquisition and computer traffic. Comtech Data's engineering excellence in high speed modem technology encompasses several transmission media:

- Broadband for local area networks (LAN)
- Groupband for 303C compatibility and replacement of Bell's discontinued LWM6
- Microwave for conversion of analog systems to digital
- Satellite earth station for common carriers

To complement this product base, Comtech Data also expanded the scope of its expertise to include other areas of the signal processing chain including frequency synthesis, frequency conversion, and voice coding.

Today, the Company's product line includes both analog and digital equipment comprising the key equipment for the commercial satellite communication earth station market. Reflecting Comtech Data's capabilities in this area is the recent expansion of the State of Arizona's Emergency Digital Voice Satellite Network to 12 stations, all of which were designed and manufactured



Milt Deevers (third from left), President of Comtech Data Corporation, and his marketing and engineering staff at the Scottsdale, Arizona Facility.



*Final inspection of Satellite Modem Printed Circuit Boards.*

by Comtech Data. The Company has also recently delivered a digital data subsystem incorporated in the Gannett Publishing Company's Satellite newspaper distribution system. Comtech Data also provided the digital equipment to Fairchild Industries for use in its internal digital teleconferencing network.

The Company's product lines have had wide acceptance in the marketplace including, among others, common carriers such as American Satellite, RCA Americom, Western Union; computer companies such as IBM and Burroughs. Sophisticated data network end-users such as Grumman Aerospace, power utilities such as the Tennessee Valley Authority and American Electric Power, telephone companies such as British Columbia and Hawaiian Telephone, hotels, motels, and cable systems, are also users of our equipment.

Recently added product lines include a new broadband digital modem which allows local area network users to implement multiple circuits on single coaxial lines. This modem will also permit the transmission of high speed data bi-directionally on broadband cable television systems. Other applications include station-to-station processing of remote computer graphics, data collection and processing, process automation, robotics, composite data streams for multiplex, and digitized voice between PBX stations. Among the developments this year, we designed a new series of frequency agile modulators for the broadcast and cable industries, a new generation of frequency agile

conversion equipment, and a more powerful forward error correction coder/decoder which is fast becoming an industry standard.

As part of the realignment of Comtech's operations, Comtech Antenna Corp., based in St. Cloud, Florida, will report through Comtech Data, and its business has been reoriented to concentrate on markets in common with Comtech Data. As such, Comtech Antenna has focused on the further development of its 3 to 5 meter fiberglass antennas for application in Comtech Data's systems as well as direct sales to other customers. The high accuracy fiberglass reflector construction and feed designs of these antennas have been a key factor in contract awards from a variety of broadcasters, publishers, and hotels.

Comtech Data Corporation has been assigned total responsibility for addressing the domestic commercial communications market for the entire Company. The Company's high-technology data communications products have reached significant levels of market acceptance, and the potentials of these markets, as well as others, are far from reaching maturity.

The proliferation of computers, both large and small, has led to a concurrent growth in the needs for interconnection at both local and remote stations. The integration of the telecommunications industry with the computer industry has given birth to the "Automated" office. The day-to-day exchange of information between widely separated locations is no longer restricted to voice, but encompasses video, pictorial facsimile, and all forms of data formerly available only as delivered hard copy.

The systems used for these communication links are not restricted, but will encompass satellite, microwave radio, cable, and the local telephone systems. For digital communications, the technologies involved are overlapping, providing a broader range of market outlets for products that can be adjusted from one system to another.

Comtech sees continued growth of the satellite market with future expansion of the common carriers, specialized carriers, and yet to be established systems serving various and diverse segments of commerce, government, and industry. The demand for broader ranges of entertainment at lower cost continues to fuel the market for satellite video reception equipment as well as equipment for the distribution of network radio and high quality stereo. The use of the satellite as an alternative for long haul communications has left a gap for similar alternatives at intermediate and local distances. This gap is felt most strongly by the heavy traffic demands of the business community. Broadband communications via coaxial cable appears to be one of the most viable approaches, and industry sources have identified this segment as potentially a multi-billion dollar business.



*Comtech's new Transportable 5-Meter Antenna.*

Comtech Data's products in all these areas are at the leading edge of technology. The Company is well positioned to respond to the opportunities resulting from anticipated market growth, such as new opportunities in response to change in industry requirements, and to expand its presence in the marketplace with both existing and new products.

Since Comtech was founded in 1967, we have been committed to technological progress in the specialized field of Low Noise Amplification. The degree to which we have succeeded in this endeavor is best measured by the fact that we are recognized as a worldwide supplier of sophisticated cryogenically and thermoelectrically cooled low noise parametric amplifiers and related microwave products for a very broad range of applications.

Comtech Microwave Corp. formerly, a product center within our Comtech Government Systems Division, was formed as a wholly-owned subsidiary of Comtech Telecommunications Corp. and moved into its own 22,000 square foot manufacturing facility at 63 Oser Avenue, Hauppauge, New York in August 1982.

The purpose of establishing Comtech Microwave Corp. as a separate subsidiary is to provide greater emphasis in the market area of microwave products and components for the telecommunications industry. The assembled team of dedicated scientists, engineers, marketing, and management personnel has been charted to capture a greater share of the microwave component market through concentrated research and development, using state-of-the-art technology.



*Technicians in the Semiconductor Laboratory assemble materials during diode manufacture.*



*Richard Mohr and Ping Chen discuss design of Parametric Amplifier.*

Comtech Microwave's current business is the design, development and production of microwave subsystems and components. Included are low-noise amplifiers, microwave semiconductors, power generating devices and other active and passive components. The product line of cryogenically and thermoelectric peltier cooled parametric amplifiers plays a significant role in the receive down-links of satellite communications earth stations and troposcatter systems.

As far back as 1967, we realized that the progress of the emerging satellite communication industry was dependent on achieving noise-free receivers as the first stage of the down link transmission from the satellite. A group of dedicated engineers at Comtech provided a technology breakthrough by designing a patented cryogenically cooled parametric amplifier commonly referred to as Comtech's Series LNA-401. This series of noise-free amplifiers immediately established the standard for the industry.

Our LNA-401 amplifiers were installed, and are today in use, in satellite stations located in over 120 member nations of the INTELSAT consortium, in all the major earth stations in the U.S. Domestic common carrier satellite systems oper-

ated by RCA, ATT, Western Union, and American Satellite, and in all U.S. Government heavy and medium Strategic Terminals used in the Department of Defense Satellite Communications network. Besides the satellite communication applications, the LNA-401 series cryogenically cooled noise-free parametric amplifiers are also finding use in earth stations monitoring telemetry data from deep space probing vehicles.

Keeping pace with the continued expansion and advancement of the capabilities of orbiting satellites and the demands of the communications industry, Comtech Microwave continues to develop its line of cryogenically and thermoelectrically peltier cooled amplifiers into the higher frequency bands carrying video, data and digital traffic. Newly developed versions of our Comtech LNA-401 amplifiers are being supplied today for earth stations requiring the ultimate in noise-free reception in the higher frequency bands now coming into use in commercial and government communications systems.

Our LNA-404 product line of thermoelectrically cooled low-noise parametric amplifiers are supplied for those satellite systems where noise requirements are less stringent. This product line provides simplicity and reliability of operation for satellite communications markets and applications in the U.S. and International Domestic and INTELSAT Systems.



*Jim Curto and Richard Mohr check performance of an X-Band LNA-704 Parametric Amplifier while Ping Chen observes.*

Cognizant of utilization of the higher frequency spectrum for satellite communications, Comtech Microwave Corp. this past year developed thermoelectrically cooled low-noise amplifiers operating at the new commercial satellite 12/14 GHz Ku-Band frequencies and at the new government satellite 20/39 GHz millimeter wave frequencies. With products available for these two new frequency bands, Comtech is now in a position to provide low-noise amplifiers, either cryogenically or thermoelectrically cooled, for all frequency bands in the range of 4 to 30 GHz.

To enhance our microwave product lines, Comtech has established a fully equipped laboratory for the in-house manufacturing of shottky-barrier varactor diodes which are a critical component of parametric amplifiers.

The diode manufacturing capability provides unusually close tolerance diode manufacturing required for low-noise parametric amplifiers as well as the laboratory equipment and facilities to experiment with various semi-conductor materials providing for improved processes and diode configurations.

Among the many firsts in Comtech's history, the Company was recently chosen by the Communications Satellite Corporation (COMSAT) to supply a new generation of extended bandwidth low-noise parametric amplifiers. These amplifiers are for use with the new generation of satellites, namely INTELSAT VI, to be used by COMSAT and member nations of INTELSAT. Comtech will install these amplifiers into U.S. based earth stations. Since COMSAT is the leading member of INTELSAT, we anticipate a demand for these new amplifiers by other INTELSAT member nations.

Changes in the microwave market over the next few years will come about as a result of rapidly moving technology into higher frequencies, more efficient use of the RF spectrum, and the trend toward digital transmission of almost every form of information now carried in

*Redundant Thermoelectrically Cooled X-Band Parametric Amplifier Subsystem.*



*Assembly and testing of Cryogenically Cooled Parametric Amplifiers.*

analog form. Thousands of terminals requiring microwave active amplifiers will be implemented. In addition, new military uses of millimeter-wave technology will result in new opportunities for which Comtech Microwave Corp. is prepared.

Our major markets are presently INTELSAT, U.S. and International Domestic Systems, and the U.S. Government, as well as the suppliers, end-users and system common carriers providing services, equipments, and systems to those markets.

Today, Comtech Microwave Corp. continues to supply a matured industry with improved low-noise amplifiers for incorporation into the thousands of earth stations which are being installed throughout the world. This proliferation of satellite communications demands that Comtech continue research and development efforts to provide lower noise amplifiers coupled with high reliability into the ever expanding frequency spectrum. Our future is dedicated to maintaining a leadership role in the satellite communication marketplace.

**Comtech Telecommunications Corp. and Subsidiaries**  
**Consolidated Balance Sheets**

**Assets**

	July 31,	1982	1981
Current assets:			
Cash and short-term investments .....		<b>\$ 4,316,000</b>	\$ 1,551,000
Accounts receivable—net (Notes 1, 3 and 14) .....		<b>5,662,000</b>	9,831,000
Inventories—net (Notes 1 and 4) .....		<b>3,516,000</b>	5,400,000
Land and building held for sale (Note 6) .....			1,767,000
Other .....		<u>213,000</u>	<u>576,000</u>
Total current assets .....		<b>13,707,000</b>	19,125,000
Property, plant and equipment—net (Notes 1 and 5) .....		<b>5,278,000</b>	4,918,000
Other assets .....		<b>446,000</b>	569,000
Net assets of discontinued operations (Note 2) .....		<b>248,000</b>	231,000
Total (Note 7) .....		<u><b>\$19,679,000</b></u>	<u><b>\$24,843,000</b></u>

**Liabilities and Shareholders' Equity**

Current liabilities:			
Accounts payable .....		<b>\$ 1,233,000</b>	\$ 2,131,000
Accrued expenses and taxes withheld .....		<b>3,291,000</b>	1,565,000
Advance contract payments received .....		<b>690,000</b>	2,467,000
Allowance for estimated loss on contracts (Notes 1, 12 and 14) .....		<b>2,517,000</b>	3,650,000
Current maturities of long-term debt (Note 7) .....		<u>356,000</u>	<u>2,052,000</u>
Total current liabilities .....		<u><b>8,087,000</b></u>	<u><b>11,865,000</b></u>
Long-term debt (Note 7) .....		<u><b>5,967,000</b></u>	<u>10,124,000</u>
Commitments and contingencies (Notes 9 and 12)			
Shareholders' equity (Notes 7, 9 and 10):			
Preferred stock, \$.10 par value:			
Authorized—2,000,000 shares; Issued—none			
Common stock, \$.10 par value:			
Authorized—10,000,000 shares:			
Outstanding—1982—3,735,232; 1981—3,557,066 .....		<b>374,000</b>	356,000
Additional paid-in capital .....		<b>3,732,000</b>	3,359,000
Retained earnings (deficit) .....		<u>1,519,000</u>	<u>(861,000)</u>
Total Shareholders' equity .....		<u><b>5,625,000</b></u>	<u>2,854,000</u>
Total .....		<u><b>\$19,679,000</b></u>	<u><b>\$24,843,000</b></u>

The accompanying Notes to Consolidated Financial Statements are an integral part of these Financial Statements.

**Comtech Telecommunications Corp. and Subsidiaries**  
**Consolidated Statements of Income (Loss)**

Year Ended July 31,	1982	1981	1980
Net sales (Notes 1, 10 and 13) .....	<u>\$33,487,000</u>	\$31,669,000	\$ 25,221,000
Costs and expenses:			
Cost of sales (Note 1) .....	23,232,000	22,793,000	32,924,000
Selling, general and administrative .....	5,323,000	3,985,000	5,008,000
Research and development (Note 1) .....	1,258,000	505,000	641,000
Interest—net .....	1,312,000	2,054,000	1,426,000
Other—net .....	(53,000)	(2,000)	36,000
	<u>31,072,000</u>	<u>29,335,000</u>	<u>40,035,000</u>
Income (loss) from continuing operations before gain on sale of assets and income taxes .....	2,415,000	2,334,000	(14,814,000)
Gain on sale of assets—net (Note 6) .....	248,000		
Income (loss) from continuing operations before income taxes .....	2,663,000	2,334,000	(14,814,000)
Provision (credit) for income taxes (Notes 1 and 8) .....	1,164,000	1,146,000	(4,931,000)
Income from continuing operations .....	1,499,000	1,188,000	(9,883,000)
Discontinued operations (Note 2):			
Loss from discontinued operations, net of tax benefit of \$267,000 in 1981 and \$-0- in 1980 .....		(313,000)	(787,000)
Estimated loss on disposal of discontinued operations, including provision for operating losses during phase-out period, net of tax benefits of \$122,000 in 1982 and \$227,000 in 1981 .....	(143,000)	(266,000)	
Income (loss) before extraordinary credit .....	1,356,000	609,000	(10,670,000)
Extraordinary credit—reduction of income taxes resulting from the utilization of net operating loss carryforwards (Note 8) .....	1,024,000	585,000	
Net income (loss) .....	<u>\$ 2,380,000</u>	<u>\$ 1,194,000</u>	<u>\$ (10,670,000)</u>
Earnings (loss) per share (Note 1):			
Continuing operations .....	\$ .40	\$ .32	\$ (2.83)
Discontinued operations .....		(.08)	(.23)
Disposal of discontinued operations .....	(.04)	(.07)	
Income (loss) before extraordinary credit .....	.36	.17	(3.06)
Extraordinary credit .....	.28	.16	
Net earnings (loss) per share (Note 1) .....	<u>\$ .64</u>	<u>\$ .33</u>	<u>\$ (3.06)</u>
Weighted average number of common and common equivalent shares outstanding .....	<u>3,712,703</u>	<u>3,673,316</u>	<u>3,487,131</u>

The accompanying Notes to Consolidated Financial Statements are an integral part of these Financial Statements.



**Comtech Telecommunications Corp. and Subsidiaries**  
**Consolidated Statements of Changes in Financial Position**

Year Ended July 31,

1982

1981

1980

Financial Resources Were Provided (Used) By:

Continuing operations:

Income (loss) from continuing operations .....	\$ 1,499,000	\$ 1,188,000	\$ (9,883,000)
Charges (credits) not affecting working capital:			
Depreciation and amortization .....	693,000	656,000	681,000
Deferred income taxes .....			(4,502,000)
Charge equivalent to the utilization of income tax loss carryforwards .....	1,146,000	1,079,000	
Total from continuing operations .....	<u>3,338,000</u>	<u>2,923,000</u>	<u>(13,704,000)</u>

Discontinued operations:

Loss from discontinued operations .....		(313,000)	(787,000)
Depreciation and amortization .....		72,000	98,000
Estimated loss on disposal of discontinued operations .....	(143,000)	(266,000)	
Credit equivalent to tax benefits .....	(122,000)	(494,000)	
Total from operations* .....	<u>3,073,000</u>	<u>1,922,000</u>	<u>(14,393,000)</u>
Increase in long-term debt .....			9,870,000
Shares issued in connection with stock option, warrant and employment agreements .....	391,000	419,000	140,000
Disposal of fixed assets—net .....	63,000	113,000	296,000
Reclassification of fixed assets of discontinued operations—net .....		839,000	
Reclassification of land and building held for sale—net .....	(48,000)	1,767,000	
Total .....	<u>3,479,000</u>	<u>5,060,000</u>	<u>(4,087,000)</u>

Financial Resources Were Used For:

Increase in net assets of discontinued operations .....	17,000	231,000	
Purchase of property, plant and equipment .....	749,000	576,000	1,070,000
Reduction in long-term debt .....	4,157,000	1,937,000	95,000
Increase (decrease) in other assets—net .....	196,000	(1,325,000)	(1,383,000)
Total .....	<u>5,119,000</u>	<u>1,419,000</u>	<u>(218,000)</u>

Increase (Decrease) In Working Capital .....

	<u>\$ (1,640,000)</u>	<u>\$ 3,641,000</u>	<u>\$ (3,869,000)</u>
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Changes In The Components Of Working Capital:

Increase (decrease) in current assets:

Cash and short-term investments .....	\$ 2,765,000	\$ (295,000)	\$ 1,616,000
Accounts receivable—net .....	(4,169,000)	911,000	(1,438,000)
Inventories—net .....	(1,884,000)	311,000	(1,532,000)
Land and building held for sale .....	(1,767,000)	1,767,000	
Other .....	(363,000)	(961,000)	(542,000)
	<u>(5,418,000)</u>	<u>1,733,000</u>	<u>(1,896,000)</u>

(Increase) decrease in current liabilities:

Notes payable .....			6,120,000
Accounts payable .....	898,000	2,066,000	(2,010,000)
Accrued expenses and taxes withheld .....	(1,726,000)	398,000	(244,000)
Advance contract payments received .....	1,777,000	(1,495,000)	279,000
Allowance for estimated loss on contracts .....	1,133,000	1,917,000	(5,566,000)
Current maturities of long-term debt .....	1,696,000	(978,000)	(552,000)
	<u>3,778,000</u>	<u>1,908,000</u>	<u>(1,973,000)</u>

Increase (Decrease) In Working Capital .....

	<u>\$ (1,640,000)</u>	<u>\$ 3,641,000</u>	<u>\$ (3,869,000)</u>
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\* The extraordinary credits had no impact on working capital in 1982 and 1981.

The accompanying Notes to Consolidated Financial Statements are an integral part of these Financial Statements.

**Comtech Telecommunications Corp. and Subsidiaries**  
**Consolidated Statements of Changes in Shareholders' Equity**

	Common Stock		Additional Paid-in Capital	Retained Earnings (Deficit)	Total
	Shares	Amount			
Balance July 31, 1979 .....	1,739,373	\$174,000	\$2,982,000	\$ 8,615,000	\$ 11,771,000
Net loss .....				(10,670,000)	(10,670,000)
Shares issued in connection with a 100% stock distribution (Note 1) ...	1,739,373	174,000	(174,000)		
Shares issued in connection with stock option, warrant and employment agreements (Note 9) .....	<u>14,200</u>	<u>1,000</u>	<u>139,000</u>		<u>140,000</u>
Balance July 31, 1980 .....	3,492,946	349,000	2,947,000	(2,055,000)	1,241,000
Net income .....				1,194,000	1,194,000
Shares issued in connection with stock option, warrant and employment agreements (Note 9) .....	<u>64,120</u>	<u>7,000</u>	<u>412,000</u>		<u>419,000</u>
Balance July 31, 1981 .....	3,557,066	356,000	3,359,000	(861,000)	2,854,000
Net income .....				2,380,000	2,380,000
Shares issued in connection with stock option, warrant and employment agreements (Note 9) .....	<u>178,166</u>	<u>18,000</u>	<u>373,000</u>		<u>391,000</u>
Balance July 31, 1982 .....	<u><b>3,735,232</b></u>	<u><b>\$374,000</b></u>	<u><b>\$3,732,000</b></u>	<u><b>\$ 1,519,000</b></u>	<u><b>\$ 5,625,000</b></u>

The accompanying Notes to Consolidated Financial Statements are an integral part of these Financial Statements.

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**Note 1: Summary of Significant Accounting and Reporting Policies***Principles of Consolidation*

The accompanying consolidated financial statements include the accounts of Comtech Telecommunications Corp. and its subsidiaries (the Company), all of which are wholly-owned. All significant intercompany transactions have been eliminated.

*Sales Recognition*

Sales are generally recognized under the unit of delivery method of accounting except for large multi-year funded military programs which utilize the percentage-of-completion method of accounting. Progress payment retainages and estimated earnings on such multi-year programs are reflected as unbilled receivables.

*Costs and Expenses*

Cost of sales is based upon the actual contract costs incurred and, in the case of partial shipments, estimated final contract costs. Contract costs include material, direct labor, manufacturing overhead and certain selling costs associated with contracts. Since contracts may extend over one or more years, revisions in costs and earnings estimates during the course of the work are reflected during the accounting period in which the facts which require the revision become known. When estimates indicate a future loss on a contract is probable, including applicable selling, general and administrative expenses, an immediate provision for the full amount thereof is charged to operations. To the extent the charge exceeds the related inventory balance, the excess is credited to the allowance for estimated loss on contracts.

*Inventories*

Raw materials and components are stated at first-in, first-out cost, which is not in excess of market. Work in process is valued at the total material, direct labor, manufacturing overhead and other direct costs incurred under each contract, less amounts charged to cost of sales pursuant to the application of the unit of delivery method of accounting.

*Property, Plant and Equipment*

Property, plant and equipment (including major renewals and betterments) are recorded at cost. At the time property is retired or otherwise disposed of, the cost and accumulated depreciation or amortization of such property is eliminated, and the gain or loss on disposition is reflected in operations. Annual depreciation is provided utilizing the straight-line method over the estimated useful lives of the related assets (buildings and improvements—40 years, equipment—3 to 8 years). Leasehold improvements are amortized over the remaining term of the related lease or the useful lives of the improvements, whichever is less.

*Research and Development Costs.*

The Company charges research and product development costs to operations as incurred except where such costs are reimbursable under customer-funded contracts.

*Income Taxes*

Where appropriate the Company provides deferred income taxes for transactions reported in different periods for financial and income tax reporting purposes (see Note 8). If applicable, investment tax credits are accounted for as a reduction of income taxes in the year the related asset is placed in service.

*Earnings (Loss) Per Share*

Earnings (loss) per share are based on the weighted average common and common equivalent shares outstanding during the year after giving retroactive effect to a 100% stock distribution declared March 4, 1980. In fiscal 1980, the outstanding stock options and warrants were not included in the computation because the effect would have been anti-dilutive. In fiscal 1982 and 1981 the effect of full dilution was immaterial.

*Reclassifications*

Certain data relating to fiscal 1981 and 1980 have been reclassified to conform to the fiscal 1982 presentation.

## Note 2: Discontinued Operations

In July 1981, the Company implemented a plan to restructure its operations. Such plan included, among other things, the discontinuance and disposal of the Company's wholly-owned subsidiary, Comtech Antenna Corp. (CAC), whose operations consisted of two distinct businesses: the manufacture of large antennae and the manufacture of small antennae. As a result, all business of CAC had been treated as discontinued operations at July 31, 1981.

During fiscal 1982, the Company ceased all large antenna operations following the completion of its obligations under contracts executed prior to its decision to discontinue the business. However, the Com-

pany reassessed its plans and decided not to sell or discontinue the small antenna business. Accordingly, the accompanying consolidated financial statements have been restated to reflect only the large antenna business as a discontinued operation. The activities of the small antenna business are included in continuing operations except for fiscal 1980's Consolidated Statement of Income (Loss) for which the impact of the small antenna business was nominal.

The net assets of the large antenna business which are included in the caption, "Net Assets of Discontinued Operations," on the accompanying Consolidated Balance Sheets are stated at the lower of cost or net realizable value and consist of the following:

	July 31,	1982	1981
Current assets .....		<u>\$115,000</u>	\$ 228,000
Property, plant and equipment—net .....		<u>761,000</u>	839,000
		<u>876,000</u>	1,067,000
Less:			
9% mortgage payable .....		<u>(328,000)</u>	(342,000)
Allowance for loss on disposal .....		<u>(300,000)</u>	(494,000)
Net assets of discontinued operations .....		<u>\$248,000</u>	<u>\$ 231,000</u>

The activity in the allowance for loss on disposal is summarized as follows:

Balance at July 31, 1981 .....	<u>\$494,000</u>
Losses from disposal of assets .....	(140,000)
Other reductions—net .....	(54,000)
Balance at July 31, 1982 .....	<u>\$300,000</u>

Net sales included in discontinued operations were \$129,000 in 1982, \$808,000 in 1981 and \$636,000 in 1980.

## Note 3: Accounts Receivable

Accounts receivable consist of the following:

	July 31,	1982	1981
Amount receivable from the United States Government .....		<u>\$ 648,000</u>	\$ 4,227,000
Unbilled receivables (including retainages) on contracts in progress relating to contracts accounted for by the percentage-of-completion method .....		<u>2,624,000</u>	3,949,000
		<u>2,498,000</u>	2,874,000
Amounts receivable from others .....		<u>5,770,000</u>	11,050,000
Less:			
Unbilled receivables in excess of one year relating to contracts accounted for by the percentage-of-completion method .....			(188,000)
Allowance for doubtful accounts (Note 14) .....		<u>(108,000)</u>	(1,031,000)
Accounts receivable—net .....		<u>\$5,662,000</u>	<u>\$ 9,831,000</u>

Unbilled receivables are billable upon completion of performance tests and acceptance by the customer. At July 31, 1981, the allowance for doubtful accounts primarily reflected the uncertainty of collection of ap-

proximately \$944,000 under a contract with a major foreign customer. In 1982, the Company charged such receivable to the allowance.

**Note 4: Inventories**

Inventories consist of the following:

	July 31,	1982	1981
Raw materials and components .....		<b>\$1,611,000</b>	\$ 2,778,000
Work in process .....		<b>6,513,000</b>	6,633,000
		<b>8,124,000</b>	9,411,000
Less:			
Progress payments not in excess of costs included in work in process .....		<b>(3,368,000)</b>	(3,821,000)
Inventory reserves (Note 14) .....		<b>(1,240,000)</b>	(190,000)
Inventories—net .....		<b><u>\$3,516,000</u></b>	<u>\$ 5,400,000</u>

**Note 5: Property, Plant and Equipment**

Changes in property, plant and equipment were as follows:

	Balance at Beginning of Year	Additions at Cost	Transfers, Retirements or Sales	Balance at End of Year
Year ended July 31, 1982:				
Land .....	\$ 650,000		\$ 48,000 <sup>(2)</sup>	\$ 698,000
Buildings and improvements .....	2,286,000	\$ 300,000	319,000 <sup>(3)</sup>	2,905,000
Leasehold improvements .....	54,000	91,000	(59,000)	86,000
Equipment .....	5,398,000	358,000	(71,000)	5,685,000
Total .....	<u>\$ 8,388,000</u>	<u>\$ 749,000</u>	<u>\$ 237,000</u>	<u>\$ 9,374,000</u>
Year ended July 31, 1981:				
Land .....	\$ 1,178,000		\$ (528,000)	\$ 650,000
Buildings and improvements .....	4,433,000	\$ 66,000	(2,213,000)	2,286,000
Leasehold improvements .....	54,000	6,000	(6,000)	54,000
Equipment .....	5,592,000	504,000	(698,000)	5,398,000
Total .....	<u>\$11,257,000</u>	<u>\$ 576,000</u>	<u>\$(3,445,000)<sup>(1)</sup></u>	<u>\$ 8,388,000</u>
Year ended July 31, 1980:				
Land .....	\$ 1,031,000	\$ 147,000		\$ 1,178,000
Buildings and improvements .....	4,268,000	165,000		4,433,000
Leasehold improvements .....	24,000	30,000		54,000
Equipment .....	5,274,000	728,000	\$ (410,000)	\$ 5,592,000
Total .....	<u>\$10,597,000</u>	<u>\$1,070,000</u>	<u>\$ (410,000)</u>	<u>\$11,257,000</u>

(1) Includes assets transferred to "Land and Buildings Held for Sale" (see Note 6) and "Net Assets of Discontinued Operations" (see Note 2).

(2) Reclassification from "Land and Building Held for Sale."

(3) Reclassification from "Other Assets."

**Note 5: Property, Plant and Equipment (Continued)**

Changes in accumulated depreciation of property, plant and equipment were as follows:

	Balance at Beginning of Year	Charged to Profit and Loss	Transfers, Retirements, Renewals or Replacements	Balance at End of Year
Year ended July 31, 1982:				
Buildings and improvements .....	\$ 162,000	\$ 77,000		\$ 239,000
Leasehold improvements .....	25,000	32,000	\$ (25,000)	32,000
Equipment .....	3,283,000	584,000	(42,000)	3,825,000
Total .....	<u>\$3,470,000</u>	<u>\$693,000</u>	<u>\$ (67,000)</u>	<u>\$4,096,000</u>
Year ended July 31, 1981:				
Buildings and improvements .....	\$ 414,000	\$ 81,000	\$(333,000)	\$ 162,000
Leasehold improvements .....	20,000	12,000	(7,000)	25,000
Equipment .....	3,034,000	635,000	(386,000)	3,283,000
Total .....	<u>\$3,468,000</u>	<u>\$728,000</u>	<u>\$(726,000)<sup>(1)</sup></u>	<u>\$3,470,000</u>
Year ended July 31, 1980:				
Buildings and improvements .....	\$ 386,000	\$ 28,000		\$ 414,000
Leasehold improvements .....	7,000	13,000		20,000
Equipment .....	2,410,000	738,000	\$(114,000)	3,034,000
Total .....	<u>\$2,803,000</u>	<u>\$779,000</u>	<u>\$(114,000)</u>	<u>\$3,468,000</u>

(1) Includes accumulated depreciation of assets transferred to "Land and Building Held for Sale" (see Note 6) and "Net Assets of Discontinued Operations" (see Note 2).

**Note 6: Land and Building Held For Sale**

During fiscal 1981, the Company decided to dispose of certain assets not essential to its operations. A building formerly utilized for operations and adjacent undeveloped land, as well as an undeveloped tract of land,

were offered for sale at July 31, 1981. The assets which were sold for cash during fiscal 1982 had a net carrying value of \$1,719,000 at such date and the resultant gain of \$248,000, net of related expenses, is included in the Consolidated Statements of Income (Loss).

## Note 7: Long-Term Debt

Long-term debt consists of the following:

	July 31,	1982	1981
Term loan (1) .....		<b>\$4,465,000</b>	\$ 9,870,000
Mortgages bearing interest at 6½% to 9½% which are payable in various monthly installments through 1992. Such mortgages are secured by the Company's land and buildings .....		<b>1,858,000</b>	2,306,000
Total .....		<b>6,323,000</b>	12,176,000
Less amount due within one year .....		<b>(356,000)</b>	(2,052,000)
Long-term debt—net .....		<b><u>\$5,967,000</u></b>	<u>\$10,124,000</u>

Such debt matures as follows:

Year Ending July 31,	Amount
1983 .....	\$ 356,000
1984 .....	164,000
1985 .....	858,000
1986 .....	860,000
1987 .....	863,000
Thereafter .....	<u>3,222,000</u>
Total .....	<b><u>\$6,323,000</u></b>

(1) In December 1980, the Company borrowed \$10,420,000 pursuant to a Term Loan and Security Agreement (the Agreement) with three banks which expires on December 4, 1982, the proceeds of which were used to repay demand debt of that same amount due to those banks. The Agreement also provided the Company with a facility of approximately \$5,700,000, equal to the amount of then outstanding letters of credit opened by those banks for the account of the Company. This facility may be used solely for the purpose of financing those letters of credit, in the event they are drawn (see Note 12). Borrowing under this facility will increase the principal amount of the term loan.

The Agreement provides for interest on the principal balance outstanding at the rate of two and one-half percentage points above the prime lending rate (such prime being 15.5% at July 31, 1982 and 20.5% at July 31, 1981, respectively), payable monthly. The Company has pledged substantially all assets, except inventory, as collateral for the loan. The Agreement requires, among other things, that the Company maintain certain minimum levels of working capital and net worth and places certain

restrictions on the payment of dividends, purchases of capital equipment and sale of securities.

In addition, the Agreement provides for a credit line of \$1,800,000 for future contract guaranty letters of credit, subject to certain conditions. This credit line was unused at both July 31, 1982 and 1981.

An aggregate of \$4,140,000 which is scheduled to mature when the Agreement expires on December 4, 1982 will be refinanced from the proceeds of a loan from the United States Government as part of the Company's award granted by the Army Contract Adjustment Board as described in Note 10. Such loan, which was entered into in September 1982, requires no payments of interest or principal until June 1984, at which time it is repayable in sixty monthly installments together with interest at a rate to be determined by the Secretary of Treasury of the United States pursuant to the Contracts Dispute Act of 1978. The loan is secured by a second mortgage on the Company's manufacturing facility in Hauppauge, New York. Accordingly, the \$4,140,000 portion of the Agreement to be refinanced is classified as long-term debt at July 31, 1982.

### Note 8: Income Taxes

Of the \$15,600,000 operating loss (prior to the reclassification for discontinued operations) incurred in fiscal 1980, approximately \$4,239,000 was carried back to prior years, approximately \$7,853,000 was applied to deferred income taxes, and the remaining \$3,508,000 was a net operating loss carryforward for financial statement purposes as of July 31, 1980. During 1980, the Company provided for taxes on previously untaxed DISC earnings of \$1,479,000.

The Company expects that its Federal income tax return for the year ended July 31, 1982 will include a net operating loss carryforward of approximately \$13,910,000, expiring principally in 1995 and 1997, as well as investment tax and research and development

credits of approximately \$138,000 and \$188,000, respectively.

For financial reporting purposes, the Company has utilized, in fiscal 1982, the last remaining portion of the \$15,600,000 operating loss (prior to reclassification of discontinued operations) incurred in fiscal 1980. Taxes on income to be reported in future periods, which would normally be currently payable, will be accounted for as restoration of net deferred tax credits previously eliminated or not previously recorded (because of the existence of the net operating loss carryforwards for financial reporting purposes) to the extent of the carryforward for income tax purposes.

The following table reconciles the Company's effective tax rate for continuing operations to the Federal statutory rate of 46%:

	July 31,	1982	1981	1980
Federal statutory income tax (credit) rate		46%	46%	(46)%
State income taxes, net of federal tax benefit		1	3	—
Tax provided on undistributed DISC earnings		—	—	5
Net operating loss carryforward		—	—	8
Investment credit		(3)	(3)	—
Other—net		—	3	—
Effective rate		<u>44%</u>	<u>49%</u>	<u>(33)%</u>

The principal causes for timing differences are (1) the Company accounts for all contracts on the completed contract method for tax purposes and (2) the charges for certain reserves and allowances are deductible in

different periods for financial and tax reporting purposes.

The provision (credit) for income taxes pertaining to continuing operations consists of the following:

	July 31,	1982	1981	1980
Federal:				
Current (benefit)				\$ (4,931,000)
Charge equivalent to the utilization of Federal income tax loss carryforwards		\$1,146,000	\$1,079,000	—
Total		<u>1,146,000</u>	<u>1,079,000</u>	<u>(4,931,000)</u>
State, principally current		<u>18,000</u>	<u>67,000</u>	—
Total		<u>\$1,164,000</u>	<u>\$1,146,000</u>	<u>\$ (4,931,000)</u>

The extraordinary credits included in the accompanying Consolidated Statements of Income (Loss) for 1982 and 1981 consist of the "charge equivalent" set forth

above less the tax benefits relating to discontinued operations.

### Note 9: Shareholders' Equity

**Capital Stock**—In 1981, shareholders approved amendments to the Company's certificate of incorporation authorizing the issuance of 2,000,000 shares of preferred stock of the Company and an increase in the authorized shares of common stock from 5,000,000 to 10,000,000 shares.

**Options and Warrants**—The Company has several stock option and warrant plans:

The 1970 Qualified Option Plan permitted the granting of options to officers and other key employees at prices equal to the fair market value of such stock at the date of grant and are exercisable for a period of not more than five years. Such plan expired in November 1980, and no further options may be granted under it.

Under the terms of the Company's 1976 Incentive Stock Option Plan, as amended, the Company may grant options to officers and other key employees at prices



**Note 9: Shareholders' Equity (Continued)**

which may not be less than 85% of the fair market value of such stock on the date of grant and are exercisable over a period determined by the Board of Directors at the time of grant. The Company may also issue Stock Appreciation Rights (SARs) under this plan which would entitle the optionee to receive, upon exercise, cash, shares of common stock of the Company, or a combination of both (as determined by the committee administering the plan) equal to the difference between the exercise price of the related option and the market price of the Company's stock on the date of exercise of the SAR. Upon exercise of the SARs, the related options must be surrendered. As of July 31, 1982, no SARs had been issued.

The difference between the option price and the fair market value on the date of grant for all options issued under the 1976 Incentive Stock Option Plan is considered compensation expense. The amount charged (credited) to expense in fiscal 1982, 1981 and 1980 was

\$24,000, (\$38,000), and \$52,000, respectively. The credit in 1981 resulted from the termination of options for which compensation expense had been previously recorded. All options granted subsequent to January 1, 1982 have been at an option price equivalent to 100% of the fair market value of the Company's common stock at the date of grant and, therefore, no compensation has been recorded for such options.

Under the Company's Incentive Warrant Plan for Directors of the Company who are neither officers nor employees of the Company or its subsidiaries, a maximum of 50,000 shares of Common Stock are available for grant under provisions to be established at the discretion of a committee of the Board of Directors. Warrants which have been granted under the Plan become exercisable over a period of ten years.

The following table sets forth summarized information concerning the Company's stock options and warrants:

	1982		1981	
	Number	Exercise Price Range	Number	Exercise Price Range
Options/warrants outstanding at the beginning of year	455,200	\$2.77-\$6.32	509,760	\$2.71-\$6.32
Granted	108,150	2.07- 4.07	226,500	3.24- 4.69
Exercised	(3,400)	3.24- 3.98	(64,120)	2.77- 3.82
Expired/cancelled	(113,900)	2.07- 6.32	(216,940)	2.71- 6.32
Options/warrants outstanding at the end of the year	<u>446,050</u>	2.07- 5.37	<u>455,200</u>	2.77- 6.32
Options/warrants exercisable at the end of year	<u>222,400</u>	2.77- 5.37	<u>230,620</u>	2.77- 6.32
Options/warrants available for grant at the end of year	<u>130,990</u>		<u>130,040</u>	

*Employee Stock Purchase Plan and Employment Agreements*—In December 1981, the Board of Directors approved the 1981 Employee Stock Purchase Plan under which a maximum of 300,000 shares of the Company's authorized and unissued common stock are reserved for offering to employees of the Company and its subsidiaries, other than officers and directors, who have been employed for at least one year and meet other minimum eligibility requirements. Under the terms of the plan, at the beginning of each six-month period, commencing with the first business day of January 1982, participants are granted the right to purchase up to 100 shares of the Company's common stock at a price equal to 85% of the fair market value of such stock at either the beginning or the end of the period, whichever is lower. Employees electing to participate in the plan may purchase stock by executing a subscription agreement and authorizing payroll deductions. During fiscal 1982 employees elected the right to purchase 28,200 shares pursuant to this plan. Of such amount, 9,566 shares were purchased and the rights to purchase 4,134 shares expired; therefore, at July 31, 1982 rights to purchase 14,500 shares remain outstanding.

Three employees of one of the Company's subsidiaries have contracts under which such employees may purchase up to 200,000 shares of the Company's common stock at a price of \$.10 per share if the subsidiary achieves certain specified milestones (98,000 shares were so purchased as of July 31, 1982). The difference between the fair market value of the Company's common stock on the date each milestone is achieved and the option price is treated as compensation expense. Such compensation charged to operations amounted to \$420,000 in 1982 and \$318,000 in 1981. No compensation expense was recognized in 1980.

In June 1982, the Company entered into an agreement with an officer under which he received and exercised the right, subject to certain restrictions, to purchase 75,000 shares of the Company's common stock at a price of \$.10 per share or an aggregate consideration of \$7,500. The difference between the fair market value of the Company's common stock as of the date of the agreement and the purchase price will be charged to compensation expense over the term of the officer's employment contract.

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**Note 10: United States Army Satellite Communications Terminal Contract**

In February 1982, the Company was granted a significant price adjustment to its largest contract by the Army Contract Adjustment Board in response to the Company's petition for extraordinary relief under the provisions of Public Law 85-804.

The terms of the award and developments related thereto included:

an increase in the maximum contract price from \$52,128,000 to \$69,703,000;

an increase from 85% to 100% in the rate at which progress billings could be made; and

the granting of the loan described in Note 7.

The award also contains certain restrictions which, among other things, prohibit the Company from paying cash dividends and limit the Company's ability to increase officer and executive compensation levels.

The additional cash flow generated by this award permitted the Company to substantially reduce trade and bank debt during fiscal 1982.

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**Note 11: Profit Sharing Plan**

The Company has a profit sharing/retirement plan covering all eligible employees of the Company excluding employees of its Comtech Data subsidiary. The plan, which has been determined to be qualified by the

Internal Revenue Service provides for the Company to contribute such amounts as the Board of Directors determines. There were no contributions for the years ended July 31, 1982, 1981 and 1980.

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**Note 12: Commitments and Contingent Liabilities**

*Letters of Credit*—In connection with the performance of work under certain contracts, the Company is required to establish letters of credit and/or performance guarantees. In previous years, the company had entered into various contracts with the Government of Libya. Such contracts generally required the Company to provide letters of credit in favor of the Libyan government or a Libyan bank. As of July 31, 1980, as a result of a contractual dispute and the deterioration in the political relations between the United States and Libya, the Company fully provided for the outstanding letters of credit of \$4,976,000 relating to the disputed contract. During the subsequent two fiscal years, the Company has continued to seek a negotiated settlement and has been successful to the extent that the letters of credit currently in force have been substantially reduced. Consequently, during fiscal 1981, the Company reversed \$2,551,000 of the reserve established in fiscal 1980 as no longer necessary.

At July 31, 1982, the Company is fully reserved for the remaining open letters of credit of \$2,307,000 pertaining to the Libyan contracts and has accrued \$250,000 for legal and professional costs associated with the ongoing negotiations with Libya.

As of July 31, 1982 the Company has an additional

outstanding letter of credit in the amount of \$164,000 relating to another contract.

*Government Contracts*—Certain of the Company's contracts are subject to audit by the Defense Contract Audit Agency and/or the Government Accounting Office. Until such Government audits are completed the ultimate profit on these contracts cannot be determined; however, in the opinion of Management, the final contract settlements will not have a material adverse effect on the Company's financial condition or results of operations.

*Merger Negotiations*—During fiscal 1982, the Company announced that the previously reported merger negotiations with Aeroflex Laboratories, Inc. had been terminated.

*Leases*—The Company and its subsidiaries have entered into leasing agreements for manufacturing facilities for initial periods ranging from 3 to 10 years. The rentals under these agreements aggregate approximately \$1,037,000, of which approximately \$208,000, \$206,000, \$126,000, \$66,000 and \$70,000, respectively, will be paid during each respective fiscal year during the period ending July 31, 1987. In addition, the Company has entered into equipment leases for periods not exceeding three years at an average annual rental of \$98,000.

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**Note 13: Segment and Principal Customer Information**

For the purposes of segment reporting, Management considers the Company to operate primarily in one industry, the communications equipment industry.

During the fiscal years ended July 31, 1982, 1981 and 1980 approximately 53%, 59% and 62%, respectively, of the Company's net sales resulted from contracts

with United States Government agencies and prime contractors of such agencies. The only other customer which constituted more than 10% of the Company's consolidated net sales during any year in the period presented was the Government of Libya which comprised 11% of net sales in 1982. Approximately 19%, 14% and 14% of net sales, respectively, resulted from export sales, including sales to the Government of Libya.

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**Note 14: Valuation Reserves**

The following is a summary of the activity in the Company's valuation reserve accounts:

	Balance at Beginning of Year	Charged to Costs and Expenses	Charged to Other Accounts	Deductions	Balance at End of Year
Allowance for doubtful accounts:					
July 31, 1982 .....	<b>\$1,031,000</b>	<b>\$ 136,000</b>		<b>\$1,059,000<sup>(1)</sup></b>	<b>\$ 108,000</b>
July 31, 1981 .....	1,069,000	115,000		153,000	1,031,000
July 31, 1980 .....		1,069,000			1,069,000
Allowance for estimated loss on contracts:					
July 31, 1982 .....	<b>\$3,650,000</b>		<b>\$ 772,000</b>	<b>\$1,905,000</b>	<b>\$2,517,000</b>
July 31, 1981 .....	5,566,000	\$ 819,000	1,032,000	3,767,000	3,650,000
July 31, 1980 .....		5,566,000			5,566,000
Inventory reserves:					
July 31, 1982 .....	<b>\$ 190,000</b>	<b>\$1,050,000</b>			<b>\$1,240,000</b>
July 31, 1981 .....		190,000			190,000

(1) See Note 3.

**AUDITORS' OPINION**

To the Board of Directors and Shareholders of  
Comtech Telecommunications Corp.:

We have examined the consolidated balance sheet of Comtech Telecommunications Corp. and subsidiaries as of July 31, 1982 and the related consolidated statements of income (loss), changes in shareholders' equity and changes in financial position for the year then ended. Our examination was made in accordance with generally accepted auditing standards and, accordingly, included such tests of the accounting records and such other auditing procedures as we considered necessary in the circumstances. The financial statements of Comtech Telecommunications Corp. and subsidiaries for the years ended July 31, 1981 and 1980 were examined by other auditors whose reissued report dated September 22, 1981 (except with respect to matters discussed in Note 10 as to which the date is February 2, 1982) expressed an unqualified opinion on those statements.

In our opinion, the 1982 consolidated financial statements referred to above present fairly the financial position of Comtech Telecommunications Corp. and subsidiaries at July 31, 1982 and the results of their operations and the changes in their financial position for the year then ended, in conformity with generally accepted accounting principles applied on a basis consistent with that of the preceding year.

*Deloitte Haskins + Sells*

October 1, 1982

## Management's Discussion and Analysis of Financial Condition and Results of Operations

### Liquidity and Capital Resources

In fiscal 1980, the Company sustained a substantial operating loss which was funded primarily by an unsecured demand bank credit line then available to the Company for working capital. On December 4, 1980 this line was refinanced by a \$10,420,000 Term Loan and Security Agreement as discussed in Note 7 to Consolidated Financial Statements. The agreement also provided the Company with a facility of approximately \$5,700,000 equal to the then outstanding letters of credit. The Company pledged all assets, except inventory, as collateral for the loan. Principal repayments were due on March 31 and August 1, 1981 and March 31 and August 31, 1982 ranging from \$550,000 to \$800,000 plus \$7,470,000 on December 4, 1982.

As of July 31, 1982 all required principal repayment obligations have been met plus approximately \$3,000,000 of the final payment due in December 1982. This was achieved through cash generated from operations; net proceeds from sales of a building and certain parcels of land not essential to the operations of the Company; and an increase in the percentage of progress payments received under our U.S. Army Satellite Communications Terminal contract. At July 31, 1982, the balance of the Term Loan Agreement had been reduced to \$4,465,000 and outstanding letters of credit to \$2,481,000.

On September 17, 1982 the Company and the Office of the Comptroller of the Department of the Army executed a \$4,140,000 Loan Agreement pursuant to the Army Contract Adjustment Board award as discussed in Notes 7 and 10 to the Consolidated Financial Statements. On September 28, 1982 the Company received such funds which were used on October 19, 1982 to repay the Term Loan. The new Army loan is repayable monthly over five years commencing June 1, 1984.

The Company presently has major commitments for purchases of materials and components under customer orders. Funds for these purposes are to be provided from progress payments which the Company will collect from customers under the terms of these orders.

Management believes that the upward price adjustment to the U.S. Army contract will beneficially impact future operations and cash flow, and that adequate capital sources are available to meet planned expenditures for fiscal 1983.

### Results of Operations

#### *1982 Compared to 1981:*

Sales for fiscal 1982 increased from the prior year primarily due to the upward price adjustment granted by the Army Contract Adjustment Board (ACAB) pursuant to Public Law 85-804 to the Company's U.S. Army Satellite Communications Terminal contract. The

award augmented the contract value which in turn increased the revenue recognized under the percentage-of-completion method of accounting.

Accordingly, the prior year reserve for estimated loss of this contract of approximately \$1 million was no longer necessary and was credited to cost of sales. However, this credit was more than offset by year-end inventory valuation reserves and write-offs recorded to cover anticipated losses on certain fixed price contracts.

Selling, general and administrative expenses increased 33% principally as a result of professional fees associated with (i) the Company's successful petition for extraordinary relief under the provisions of Public Law 85-804, (ii) negotiations to obtain an agreement with a foreign customer not to demand payment under open letters of credit relating to a contract dispute, and (iii) legal action taken against a competitor. In addition, inflationary cost increases and rising expenditures commensurate with the level of overall activity contributed to the fiscal 1982 increase from 1981.

Research and development expense increased over the prior year as the resources needed for this purpose became more available. Research and development activities are essential to our industry as the technology involved in the design and manufacture of the Company's products is complex and subject to frequent change.

The overall provisions of the price adjustment granted by the ACAB resulted in substantially increased cash flow thereby permitting the Company to reduce debt and increase short-term investments. Accordingly, net interest expense declined significantly from fiscal 1981.

The loss from disposal of discontinued operations recorded in fiscal 1982 represents a write-off in connection with a contract for a large antenna. Such contract is now completed and no further losses are anticipated.

No federal income taxes have been currently payable since fiscal 1979 because of the application of net operating loss carryforwards against taxable income. For financial reporting purposes, in fiscal 1982 the Company fully utilized the operating loss carryforward incurred in fiscal 1980.

#### *1981 Compared to 1980:*

Sales increased 26% due mainly to strong growth of video receiver sales, and completion of two major contracts for earth station installations.

Cost of sales decreased 31% primarily because fiscal 1980 reflects the impact of realizing higher than anticipated costs on several fixed price contracts and reserves taken for letters of credit, whereas fiscal 1981 reflects a credit for the restoration to income of certain of these letters of credit which subsequently expired or were reduced. Net of these items, the Company's cost of sales ratio approximates historical ratios.

Selling, general and administrative expenses decreased 20% principally because fiscal 1980 included

**Management's Discussion and Analysis (Continued)**

the impact of a major provision for bad debts on accounts receivable.

Net interest expense increased 44% due mainly to significantly higher interest rates.

Fiscal 1981 reflects a provision for income taxes compared to a credit for fiscal 1980, because fiscal 1981 reflects a profit compared to a 1980 loss. The tax credit reported in 1980 represented the maximum benefit available for that period. The fiscal 1981 federal provision, which is a charge equivalent to the utilization of federal income tax loss carryforwards, was fully offset by an extraordinary credit.

The fiscal 1981 loss from discontinued operations and loss on disposal of discontinued operations result from a decision to discontinue the large antenna operations of Comtech Antenna Corp.

*1980 Compared to 1979:*

Sales decreased 17% principally due to delivery delays. Cost of sales increased 32% primarily due to the cumulative impact of realizing higher than anticipated costs on several fixed price contracts and reserves taken for letters of credit.

Selling, general and administrative expenses increased 77% due mainly to the impact of a major provision for bad debts on accounts receivable, and significant increases in charges for professional and consulting fees.

Net interest expense increased 229% due to significantly higher levels of debt and rates of interest.

**Quarterly Stock Prices and Dividend Data 1981-1982**

	High Bid	Low Bid	High Asked	Low Asked
Fiscal Year ended July 31, 1981				
First Quarter .....	6	3 <sup>3</sup> / <sub>4</sub>	6 <sup>1</sup> / <sub>8</sub>	3 <sup>7</sup> / <sub>8</sub>
Second Quarter .....	5 <sup>5</sup> / <sub>8</sub>	4 <sup>3</sup> / <sub>8</sub>	5 <sup>7</sup> / <sub>8</sub>	4 <sup>1</sup> / <sub>2</sub>
Third Quarter .....	6 <sup>3</sup> / <sub>4</sub>	3 <sup>1</sup> / <sub>8</sub>	6 <sup>7</sup> / <sub>8</sub>	3 <sup>1</sup> / <sub>4</sub>
Fourth Quarter .....	7 <sup>1</sup> / <sub>8</sub>	4 <sup>1</sup> / <sub>8</sub>	7 <sup>3</sup> / <sub>8</sub>	4 <sup>1</sup> / <sub>4</sub>
Fiscal Year ended July 31, 1982				
First Quarter .....	5 <sup>1</sup> / <sub>8</sub>	2 <sup>1</sup> / <sub>2</sub>	5 <sup>3</sup> / <sub>8</sub>	2 <sup>3</sup> / <sub>4</sub>
Second Quarter .....	4 <sup>1</sup> / <sub>8</sub>	2 <sup>1</sup> / <sub>4</sub>	4 <sup>1</sup> / <sub>4</sub>	2 <sup>3</sup> / <sub>8</sub>
Third Quarter .....	4 <sup>5</sup> / <sub>8</sub>	3 <sup>5</sup> / <sub>8</sub>	4 <sup>3</sup> / <sub>4</sub>	3 <sup>3</sup> / <sub>4</sub>
Fourth Quarter .....	4 <sup>7</sup> / <sub>8</sub>	3 <sup>3</sup> / <sub>4</sub>	5	4

No dividends were declared during the Company's 1981 and 1982 fiscal years.

The common stock of Comtech Telecommunications Corp. is traded in the Over-the-Counter market. The prices shown are representative quotations supplied by the National Association of Securities Dealers, Inc. through NASDAQ and do not include retail mark-up, mark-down or commissions and do not necessarily reflect actual transactions.

## Board of Directors

\*F. Kornberg

Chairman and Chief Executive Officer  
Comtech Telecommunications Corp.

\*\*†B. Adler

Business and Engineering Consultant

\*\*G. Bugliarello

President  
Polytechnic Institute of New York

M. L. Deever  
Vice President

Comtech Telecommunications Corp.  
and President  
Comtech Data Corporation

G. A. Reed

President and Chief Operating Officer  
Comtech Telecommunications Corp.

\*\*†J. M. Schein

Chairman and Chief Executive Officer  
Henry Schein, Inc.

†S. S. Weiner

Managing Director  
Stenhous Weiner, Sherman Ltd.  
Management Consultants

Executive Committee  
Audit Committee

\*\*Compensation Committee

## Officers

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Chairman and Chief Executive Officer

G. A. Reed

President and Chief Operating Officer

H. Bergman

Senior Vice President, Finance &  
Administration and Secretary

M. Deever

Vice President

## Legal Counsel

Botein, Hays, Sklar & Herzberg

200 Park Avenue  
New York, NY 10166

## Banks

National Bank of North America

600 Broad Hollow Road  
Melville, NY 11747

European American Bank

730 Veterans Memorial Highway  
Hauppauge, NY 11788

## Independent Public Accountants

Deloitte Haskins + Sells

100 Crossways Park West  
Woodbury, NY 11797

## Registrar & Transfer Agent

American Transfer Company

44 Beaver Street  
New York, NY 10004

Stock Traded - OTC

NASDAQ Symbol - CMTL

## Offices

### Executive

Comtech Telecommunications Corp.

North Shore Atrium II  
6900 Jericho Turnpike  
Syosset, NY 11791  
(516) 496-7040

### Plants and Subsidiaries

Comtech Government Systems  
Division

45 Oser Avenue  
Hauppauge, NY 11788  
(516) 231-5454

Comtech Data Corporation

350 North Hayden Road  
Scottsdale, AZ 85257  
(602) 949-1155

Comtech Antenna Corp.

3100 Communications Road  
St. Cloud, FL 32769  
(305) 892-6111

Comtech Microwave Corp.

63 Oser Avenue  
Hauppauge, NY 11788  
(516) 435-4646

Comtech Mideast International, Inc.

45 Oser Avenue  
Hauppauge, NY 11788  
(516) 231-5454

Comtech Systems International, Inc.

45 Oser Avenue  
Hauppauge, NY 11788  
(516) 231-5454

## Annual Meeting

Shareholders are cordially invited to attend and participate in the Annual Meeting of Shareholders scheduled for Thursday, December 16, 1982 at 10:00 a.m. at:

North Shore Atrium II  
6900 Jericho Turnpike  
Syosset, NY 11791

## Availability of Form 10-K

Shareholders may obtain a copy of Form 10-K, exclusive of exhibits free of charge by writing to:

Secretary  
Comtech Telecommunications Corp.  
North Shore Atrium II  
6900 Jericho Turnpike  
Syosset, NY 11791

The company also will furnish exhibits to the Form 10-K to shareholders who request same upon payment to the company of a \$10 fee.

## Equal Opportunity Policy

It is the policy of Comtech to provide equal opportunity to all employees and applicants for employment without regard to race, sex, religion, color, or national origin, and affirmative action is taken to ensure the implementation of this policy.

# COMTECH

TELECOMMUNICATIONS CORP

North Shore Atrium II  
6900 Jericho Turnpike  
Syosset, NY 11791  
(516) 496-7040

