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EX PARTE OR LATE FILED

January 4, 2001

Notice of Ex Parte Communication

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FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

Ms. Magalie R. Salas
Secretary
Federal Communications Commission
445 Twelfth Street, S.W.
Washington, D.C. 20554

Re: CS Docket No. 98-120, *Carriage of Digital TV Stations*
MM Docket No. 00-39, *Digital Biennial Review*

Dear Ms. Salas:

Yesterday, Valerie Schulte, Karen Fullum Kirsch, and the undersigned met with Karen Onyeije of Chairman Kennard's office concerning the above-referenced proceedings. We discussed the following issues:

- We argued the Commission should not require full NTSC coverage replication by DTV stations at an early date because doing so would substantially increase the costs and difficulties of meeting the DTV build-out requirements. We observed that many stations, particularly those in smaller markets, now plan to go on the air with a digital signal using side-mounted antennas and lower powered transmitters that would not achieve full NTSC replication. Requiring full replication would entail for many of these stations significant additional tower construction, which would place great stress on already restricted tower resources. Instead, as we argued in NAB's Comments, the Commission should wait until later in the transition before requiring full DTV coverage.

- We pointed out that the record in the Commission's proceeding on DTV carriage issues had been closed for over two years and urged that the Commission proceed to decide all questions raised concerning DTV carriage. The lack of cable carriage of the vast majority of the 167 operating DTV stations has been and will continue to be a significant factor in delaying the transition to digital television. We pointed out, as we had in our comments, that strong factual, policy, statutory, and constitutional arguments existed to support full must carry rights for digital television signals.

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- We discussed various estimates of the cost of requiring a digital tuner in every television receiver. We provided the attached examples of current pricing for the equipment needed to add DTV reception to sets, and argued that even these quite reasonable prices were not likely to reflect the actual costs of adding a DTV reception capability requirement because (1) like almost all electronics costs, the chips needed to enable DTV reception would become more capable at less cost over time, and (2) the prices we quoted were for relatively small quantities and would decrease substantially in the quantities needed to provide DTV reception in every new receiver. We also provided a copy of an issue of NAB's *TV TechCheck* that reviewed the costs of televisions following the adoption of the All-Channel Receiver Act. Contrary to the predictions of set manufacturers at that time, the addition of all-channel reception capability did not lead to increased costs for televisions; indeed the average television receiver factory cost *declined* every year.

Should there be any questions concerning this matter, please direct them to the undersigned.

Respectfully submitted,

Jack N. Goodman

cc: Karen Onyeije

Attachments

PLEASE FORWARD TO THE ENGINEERING DEPARTMENT

National Association of NAB BROADCASTERS

TV TechCheck ✓

The weekly newsfax for TV broadcast engineers *October 30, 2000*

AN ALL-CHANNEL RECEIVER REQUIREMENT FOR DTV: COULD HISTORY REPEAT ITSELF?

On October 10, 2000, FCC Chairman William Kennard's speech at the Museum of Television and Radio included several recommendations for action from Congress to bring about completion of the DTV transition. One of particular interest: '

"Congress should direct the FCC to adopt a requirement that, by a given date—say January 1, 2003—all new television sets include the capability to receive DTV signals. In addition to accelerating DTV deployment, this order would make DTV technology much more affordable by unleashing market forces and economies of scale to drive down the cost of equipment and receiver chips in both sets and converter boxes."

This subject had been brought up at several points in the Commission's advanced television proceeding. In August 1995, the FCC's *Fourth Further Notice of Proposed Rulemaking*, discussed the All-Channel Receiver Act of 1962 and its relationship to advanced television. NAB believes the Commission already has the authority to invoke the Chairman's request. In comments filed last May in the DTV Biennial Review, NAB noted the parallel situation of the DTV transition today with the UHF transition of the 60's and urged the Commission "to promptly notice and then adopt All-Channel Television Receiver Rules which will require that all new television receivers 13" and greater in diagonal screen size be capable of receiving all frequencies allocated by the Commission to television broadcasting, including all NTSC and all DTV channels." There are some interesting parallels between the UHF broadcasting issues that led to passage of the All-Channel Receiver Act and the present situation with DTV and NTSC.

In a January 11, 1962, speech at the National Press Club, FCC Chairman Newton Minnow used all-channel legislation as his main theme announcing that "our chief legislative proposal for 1962 is the all-channel TV receiver bill." *Broadcasting Magazine* reported that "the success of the FCC's No. 1 lobbying crusade is somewhat doubtful. Similar bills have been introduced in the past three Congresses but have not been successful in even getting a committee hearing." Closely tied up with proposed all-channel legislation was the FCC proposal to "de-intermix" eight markets by withdrawing their VHF channels, on the supposition that UHF stations could not compete effectively with VHF stations. Nine bills were introduced in the House to block the de-intermixture move, and five of those also included an all-channel receiver proposal as a better way to encourage UHF development. By February 19, *Broadcasting Magazine* reported a change was in the wind: "The feeling is growing that an all-channel receiver bill will pass..." On February 20, EIA testified at hearings before the Senate Communications Subcommittee justifying its opposition to the all-channel legislation, saying it would result in a 14%, or $30, increase to the price of sets. EIA said the failure of UHF was not due to lack of UHF sets, but to a lack of enterprise and imagination on the part of UHF station operators. As an alternative, EIA suggested a "voluntary program in which manufacturers would cooperate in a campaign to promote UHF." The House held hearings the next month where NAB President LeRoy Collins stated NAB's support for all-channel legislation and maintaining VHF/UHF intermixture:

"The House Commerce Committee approved a bill for all-channel receivers in late March 1962. It passed the House with a vote of 279-90 in early May. EIA opposed the legislation (although RCA, Zenith and Admiral supported it) but, in case it passed, made the somewhat bizarre proposal that "[Congress] should at least require VHF broadcasters to provide parallel UHF program service... to compensate the consumer for the extra cost of his set. "

In late May, the Senate Commerce Committee approved an all-channel receiver bill and included an amendment requested by the FCC to require noise figures of receivers to meet minimum criteria. It passed the Senate in early June. By agreement with the FCC, the de-intermixture proposals were put on hold, and were eventually withdrawn by the FCC. The magnitude of the accomplishment of the passage of the bill was noted in a *Broadcasting Magazine* editorial on June 25:

"The incredible, if not the impossible, happened in the passage of all-channel receiver legislation by Congress....Enactment of this legislation against what were regarded as insuperable odds is a striking example of what can be achieved when broadcasters work together for a just cause. "

President Kennedy signed the bill into law on July 10 1962, authorizing the FCC to require television receivers "be capable of adequately receiving all frequencies allocated by the Commission to television broadcasting." In September, the FCC released a *Notice of Proposed Rulemaking* requiring any television set manufactured after April 30, 1964, to be an all-channel set. They also proposed a maximum noise figure for the tuner. The *First Report and Order* establishing this rule was issued in November 1962. And what was the result?

YEAR	Avg. (B/W) TV Factory Cost ($)	% homes w/ UHF receivers	#UHF stations
1961	125	7.1	91
1962	128	7.3	102
1963	118	9.6	113
1964	109	15.8	120
1965	106	27.5	129
1966	98	38.0	148
1967	92	47.5	174
1968	74	57.0	211

EIA's prediction apparently didn't materialize. But the predicted growth of UHF television stations and potential UHF viewing audience is indeed apparent. Today there are over 900 UHF television stations. Is any of this relevant to DTV? The saying goes: he who does not study history is condemned to repeat it. Maybe that wouldn't be such a bad thing for the DTV transition.

Courtenay S. Brown, Editor **Tel: +1 (202) 429-5341** **Fax: +1 (202) 775-4981**

Examples of Current Pricing Information for DTV Capability

- Broadcom BCM3510 HDTV CATV Receiver ($20 in quantities of 10,000) and BCM7020 Single-Chip Set-Top Box System ($50 in quantities of 10,000)

- NxtWave NXT2000 VSB QAM receiver IC ($20 in quantity of 10,000)

- Motorola MCT5100 M-DTV module ($150 suggested resale price)

- Moore's Law examples
  -- Memory cost per bit and million of transistors per chip as a function of time
  -- Chip complexity as a function of time

FOR IMMEDIATE RELEASE- October 17, 2000

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Broadcom Introduces Industry's First End-to-End Chipset for Terrestrial HDTV

Chipset Provides TV and Set-Top Box Makers with Technology for Superior HDTV Reception and Display

IRVINE, Calif. - October 17, 2000 - Broadcom Corporation, the leading provider of integrated circuits enabling broadband communications, today announced the availability of the industry's first end-to-end chipset for receiving and displaying terrestrial High Definition Television (HDTV). With the introduction of this highly integrated chipset, Broadcom is enabling the transition from traditional analog TV reception to HDTV reception, providing consumers with crystal clear, digital quality video and CD quality audio.

The Broadcom chipset provides television and set-top box manufacturers with the highest performing Vestigial Side Band (VSB, the North American standard for terrestrial HDTV) receiver and a 2D/3D video-graphics subsystem for Standard Definition Television (SDTV) and HDTV displays.

This new system solution is made possible by combining the new Broadcom® BCM3510 HDTV/CATV (Cable TV) Receiver with Broadcom's previously announced BCM7020 Single-Chip Set-Top Box System. The BCM3510 is an integrated VSB and QAM receiver, which supports both the North American ATSC Grand Alliance broadcast television standard and North American cable TV standards.

Through extensive independent testing, Broadcom's BCM35[illegible] has

been proven to be the highest performing VSB receiver available. The BCM3510 takes performance to a new level with power consumption reduced to less than one watt, simplified ease of use, and improved algorithms for handling difficult multi-path channel conditions.

Robert Graves, Chairman of the Advanced Television Systems Committee (ATSC), commented on this announcement. "The ATSC is delighted to learn of the introduction of Broadcom's second-generation high-performance VSB receiver. When the ATSC promotes the benefits and advantages of VSB systems worldwide, we include Broadcom VSB receivers because of their superior performance in diverse terrestrial television reception environments. This latest contribution from Broadcom epitomizes the kind of innovative improvements that manufacturers are making in ATSC receivers."

"Our chipset offers television and set-top box manufacturers a complete solution for receiving and displaying terrestrial HDTV," said Rich Nelson, Broadcom's Senior Director of Marketing, Broadband Communications Business Unit. "This will allow manufacturers to introduce next-generation products with superior reception and user features, accelerating HDTV adoption in the market. This is right in line with FCC Chairman William Kennard's vision for the widespread availability of digital television to American consumers."

In an October 10 speech, Kennard said: "Congress should direct the FCC to adopt a requirement that, by a given date - say January 1, 2003 - all new television sets include the capability to receive DTV (digital television) signals. In addition to accelerating DTV deployment, this order would make DTV technology much more affordable by unleashing market forces and economies of scale to drive down the cost of equipment and receiver chips in both sets and converter boxes."

BCM3510 Features

The BCM3510 is a highly integrated single-chip receiver for the ATSC standard. The receiver contains an on-chip Analog/Digital converter with automatic gain control to simplify system design. It provides the highest performance in dynamic multi-path conditions with a full implementation, 46 msec equalizer. A patented, high-performance notch filter automatically eliminates NTSC co-channel interference.

In addition to the VSB receiver, the BCM3510 implements a fully compliant ITU J.83 Annex A, B and C QAM receiver enabling a "cable-ready" digital TV solution in a single package at no additional cost. The user interface to the BCM3510 is managed through a high-level application programming interface (API) using an on-chip micro-controller. This simplifies system software development, and reduces time-to-market for system development. The BCM3510 delivers outstanding performance and consumes less than one watt of power.

BCM7020 Features

Broadcom's BCM7[illegible] [illegible] video-graphics decoder and [illegible] [illegible], introduced in December 19[illegible], provided the industry with [illegible] 2D/3D video-graphics subsystem that supports both SDTV and HDTV standards for North America, Europe and Japan. It can decode multiple video streams simultaneously, enabling new services such as multiple camera angles and Picture-in-Picture. The BCM7020 supports all [illegible] ATSC [illegible] formats. In addition, the [illegible] subsystem [illegible] analog TV formats [illegible] integration of digital and analog television.

BCM93510 and BCM97020 Reference Designs

To enable complete HDTV system development with the [illegible] and BCM7020, Broadcom offers the BCM93510 and BCM97020 reference designs. This combined system is a stand-alone HDTV receiver with an ATSC-compliant tuner, the BCM3[illegible] VSB/QAM receiver and the BCM7020 HDTV video-graphics decoder. The reference designs are delivered with complete software [illegible] schematics and Gerber files, providing [illegible] manufacturers of integrated TV [illegible] and stand-alone HDTV decoders.

Pricing and Availability

The BCM3510 is available in sample quantities today. It is priced at $20 in 10,000 piece quantities and is packaged in a 128-pin PQFP. The BCM7020 is now available, priced at $50 in 10,000 piece quantities, and is packaged in a 420-pin TBGA.

About Broadcom

Broadcom Corporation is the leading provider of highly integrated silicon solutions that enable broadband digital transmission of voice, video, and data. Using proprietary technologies and advanced design methodologies, the company designs, develops and supplies integrated circuits for a number of the most significant broadband communication markets, including the markets for cable set-top boxes, cable modems, high-speed local, metropolitan and wide area networks, home networking, Voice over Internet Protocol (VoIP), carrier access, residential broadband gateways, direct broadcast satellite and terrestrial digital broadcast, optical networking, digital subscriber lines (xDSL) and wireless communications. Broadcom is headquartered in Irvine, Calif., and may be contacted at 949-450-8700 or at www.broadcom.com.

Safe Harbor Statement under the Private Securities Litigation Reform Act of 1995:

This release may contain forward-looking statements based on [illegible] expectations, estimates and projections about [illegible] industry, management's beliefs and certain assumptions made by us. Words such as "anticipates," [illegible]

"plans," "believes," "seeks," "estimates," "continues," "may," "will," "should," "would," "could," or similar expressions are intended to identify forward-looking statements. In addition, any statements that refer to expectations, projections or other characterizations of future events or circumstances, including any underlying assumptions, are forward-looking statements. These statements are not guarantees of future performance and are subject to certain risks, uncertainties and assumptions that are difficult to predict. Therefore, actual results may differ materially and adversely from those expressed in any forward-looking statements as a result of various factors.

Important factors that may cause such a difference include, but are not limited to, the BCM3510, BCM7020, BCM9350 and BCM product families and the risks limited to, the timing and successful completion of technology and product development through volume production; the rate at which our present and future customers and end-users adopt Broadcom's technologies and products in the markets for advanced set-top box and HDTV products; delays in the adoption and acceptance of industry standards in the foregoing markets; the timing of customer-industry qualification and certification of our products and the risks of non-qualification or non-certification; the timing, rescheduling or cancellation of significant customer orders; the loss of a key customer; the volume of our product sales and pricing concessions on volume sales; silicon wafer supply and the availability of foundry and assembly capacity and raw materials; the quantity, quality, availability and pricing of competing products and technologies and the resulting effect on sales and margins of our products; intellectual property disputes and costs of protecting our intellectual property; fluctuations in the manufacturing yields of our foundry suppliers, product hazards and other problems or delays in the fabrication, assembly, testing or delivery of our products; our ability to specify, develop or acquire, complete, introduce, market and transition to volume production new products and technologies in a timely manner; the effects of new and emerging technologies; the effects of our product cost reduction efforts; the risks of producing products with new suppliers and at new fabrication and assembly facilities; problems or delays that we may face in shifting our products to smaller geometry process technologies and in achieving higher levels of design integration; the risks and uncertainties associated with our international operations; our ability to retain and hire key executives, technical personnel and other employees in the numbers, with the capabilities, and at the compensation levels needed to implement our business and product plans; changes in our product or customer mix; the quality of our products and any remediation costs; the effects of natural disasters and other events beyond our control; the level of orders received that can be shipped in a fiscal quarter; potential business disruptions, claims, expenses and other difficulties resulting from residual "Year 2000" problems in computer-based systems used by us, our suppliers or our customers; general economic conditions and specific conditions in the markets we address; and other factors.

Our Annual Report on Form 10-K, recent and forthcoming Quarterly Reports on Form 10-Q, recent Current Reports on Forms 8-K and 8-K/A, and other Securities and Exchange Commission filings discuss some of the important risk factors that may affect our business, results of operations and financial condition. We undertake no obligation to revise or update publicly any forward-looking statements for any reason.

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Digital TV/DTV Products

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PRESS ROOM

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NXTWAVE COMMUNICATIONS ADVANCES DIGITAL TELEVISION RECEPTION WITH INTRODUCTION OF NXT2002 CHIP

NXT2002 Technology Offers Superior DTV Reception, Increases Performance and Reliability

LANGHORNE, Pa., Dec. 19, 2000- NxtWave Communications Inc., (nxtwavecomm.com) a developer of broadband communications integrated circuits (ICs), today introduced the NXT2002, its second-generation multimode VSB/QAM receiver chip for digital televisions (DTVs), PCs and digital set-top boxes.

Compliant with the North American ATSC standard for broadcast, NXT2002 decodes both vestigial side band (VSB) for terrestrial broadcast and in 64- or 256- quadrature amplitude modulation (QAM) modes for DTV cable connections and DTV Interactive reception.

"The NXT2002 is testimony to NxtWave's commitment to the DTV industry," said Matt Miller, president and CEO of NxtWave Communications Inc. "With our unique combination of market focus

and innovative technology. NxtWave continues to drive [illegible] advancement of the industry with improvements to VSB [illegible] and performance."

The NXT2002 combines best-in-breed performance and an extensive user-friendly feature set in the smallest package on the market today. The device demonstrates superior reception performance in the presence of multi[illegible] adjacent and [illegible] channel interfe[illegible] and cable environments.

"The ATSC is delighted to learn of the introduction of NxtWave's second-generation high-performance VSB receiver chip. NxtWave's latest technical advancements exemplify the kind of innovation manufacturers are making in ATSC integrated circuits and receivers," said Robert Graves, chairman of the Advanced [illegible] Systems Committee (ATSC). "Such improvements and man[illegible] support will help to accelerate the transition to digital televi[illegible]."

"DTV and HDTV are rapidly gaining market momentum. Technological innovations, such as the NXT2002 receiver [illegible] critical elements of the consumer electronics industry, which constantly strives to give consumers ever-improving value [illegible] products," said Gary Shapiro, president and CEO of the [illegible] Electronics Association (CEA). "New product introductions [illegible] always important in developing a new category, like DTV, to marketplace success."

The NXT2002 is the only VSB/QAM receiver chip to offer the rejection of 0dB echoes. The advanced sparsed equalizer provides better AWGN performance, enhanced multipath tracking and less jitter than conventional equalizers producing a more reliable architecture that enables and maintains signal lock for continuous picture feed. New developments in NXT2002's integrated adaptive control allow for reliable acquisition and reacquisition of DTV signal, resulting in clear high definition reception for consumers.

Configurable to operate from a 25 MHz crystal or from an external 25 MHz clock source, the on-chip integration of the direct IF sampling 10-bit ADC, AGC integrator, tuner control, all-digital symbol recovery and the all-digital carrier recovery circuitry further reduces the cost of external components for DTV manufacturers.

Packaged in a 100-pin thin quad flat pack (TQFP), the price of the NXT2002 is $20 each in 10,000 unit quantities. Production quantities are scheduled for Q1 2001. Additional product information is available at www.nxtwavecomm.com.

About NxtWave Communications Inc.

NxtWave Communications Inc. develops broadband communications integrated circuits (ICs) for use in multiple ma[illegible]

Motorola and Wind River Team Up

FOR RELEASE:
13 November 2000

Motorola and Wind River Team Up to Provide Digital TV Solution for the TV and Set Top Box Markets

Motorola delivers MDTV solution with Wind River's VxWorks; Reducing Time-to-Market for OEMs

CHANDLER Ariz. ALAMEDA Calif.- November 13, 2000 - Motorola Inc. (NYSE:MOT) and Wind River Systems, Inc. (Nasdaq:WIND) today announced that Motorola has become a value-added reseller (VAR) of Wind River by integrating Motorola's MCT5100 M-DTV™ module and Wind River's VxWorks® real-time operating system (RTOS)--a market-leading RTOS for embedded development. The solution allows OEMs to develop digital TV products and set top box products with improved time to market. The MCT5100 module is based upon Motorola's digital television (DTV) chipset and provides an OEM module that can receive all ATSC DTV formats and convert them for display on a standard television set. The module will enable consumers to receive DTV and high-definition television (HDTV) broadcasts using affordable digital set-top boxes and DTVs. This DigitalDNA™ solution will assist Motorola's customers in shortening design-time on television-related applications and is available immediately.

This solution arrives at an ideal time, as the chairman of the U.S. Federal Communications Committee (FCC), William Kennard, recently announced its intent to speed up the adoption of digital television in the US market. "Motorola has taken a bold initiative, to enable the design and production of low-cost standard definition TV sets that can take advantage of the capabilities of local DTV broadcasts," said Gerry Kaufhold, principal analyst at In-Stat's Converging Markets and Technologies Group. "The announcement with Wind River sets the stage for a lot of innovation to begin."

Motorola's module utilizes Wind River's VxWorks RTOS as the basis for running the drivers and application programs. This module integrates the functionality required to convert

the ATSC digital TV signals to the existing standard definition format. The TV module is designed to increase the precision and clarity of the picture and enhance the audio of today's televisions.

Motorola and Wind River have teamed together to provide a development system to OEMs based on the Motorola module and using Wind River's VxWorks operating system, graphics and Java libraries. OEMs will be able to use this development system to evaluate the chipset and develop custom solutions tailored to their own specific markets. The development system sclution reduces the cycle time for DTV products to reach the market place.

"VxWorks is a leading operating system choice among embedded designers and we are pleased to be able to offer our customers this best-in-class software," said Wil Salhuana, vice president and general manager of Motorola's Entertainment Solutions Division. "The challenge today is to bring products faster to market and this effort will assist Motorola's customers in shortening their design-time. This is the latest example of how DigitalDNA' solutions from Motorola bring greater functionality and flexibility to DTV and set top box markets."

"Wind River is delighted to team with Motorola on DTV solutions through our VAR program," said Curt Schacker, vice president of marketing and corporate development at Wind River. "Wind River's breadth and depth of embedded software and services expertise, combined with the horsepower of Motorola's robust DTV chipset, will provide an ideal solution for OEM designers. We look forward to working closely with Motorola and its OEMs as we reinforce our commitment to enabling next-generation smart devices, including DTV and set top box applications."

Pricing and Availability
The MCT5100 M-DTV module is immediately available from Motorola and the suggested resale price is $150 in quantities of 100,000. Motorola plans to offer the development system solution in first quarter 2001.

About Motorola
As the world's #1 producer of embedded processors, Motorola's Semiconductor Products Sector offers multiple DigitalDNA' technologies which enable its customers to create "smart" products and new business opportunities in the networking and computing, wireless communications, transportation, and imaging and entertainment markets. Motorola's worldwide semiconductor sales were $7.4 billion

(USD) in 1999.
http://www.motorola.com/semiconductors

Motorola, Inc. (NYSE:MOT) is a global leader in providing integrated communications solutions and embedded electronic solutions. Sales in 1999 were $33.1 billion.
http://www.motorola.com

About Wind River
Wind River, www.windriver.com, is a worldwide leader in embedded software and services for creating connected smart devices. Wind River provides software development tools, real-time operating systems, and advanced connectivity for use in products throughout the Internet, telecommunications and data communications, digital imaging, digital consumer electronics, networking, medical, computer peripherals, automotive, industrial automation and control, and aerospace/defense markets. Wind River is how smart things think. Founded in 1983, Wind River is headquartered in Alameda, California, with operations in sixteen countries worldwide.

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Motorola Semiconductor Products Sector Markets, Products & Solutions Contacts

Updated: 12Nov2000

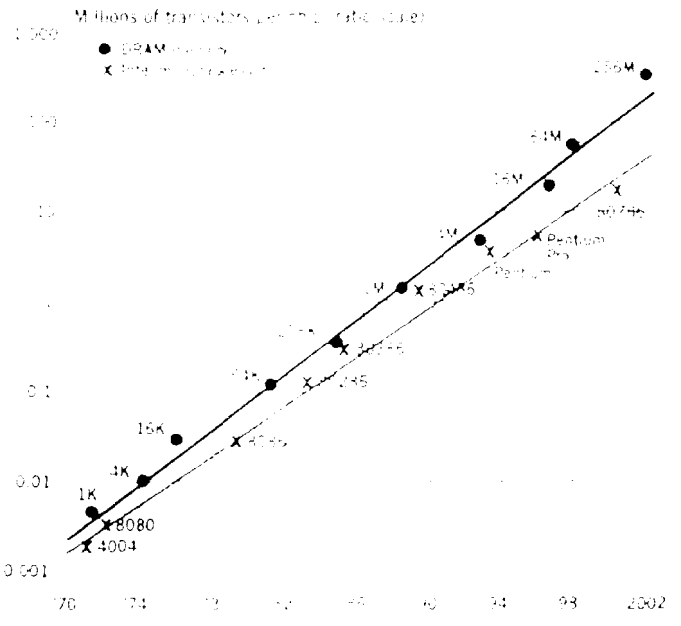

FIGURE 30.1

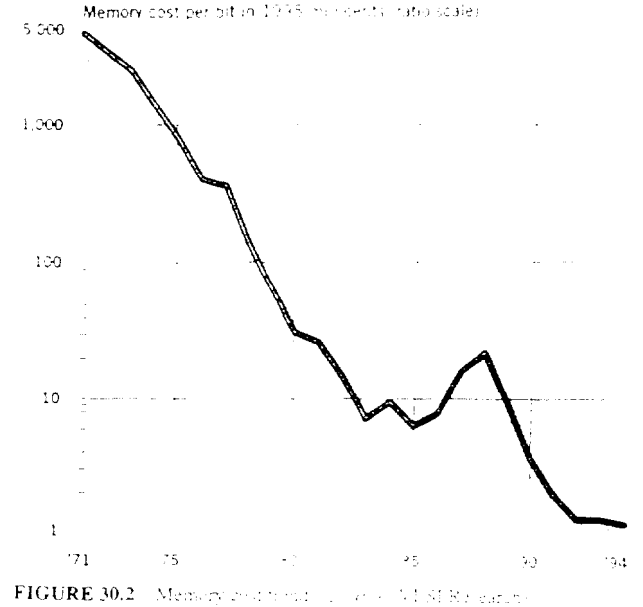

FIGURE 30.2

30.5 DIGITAL SIGNAL PROCESSING

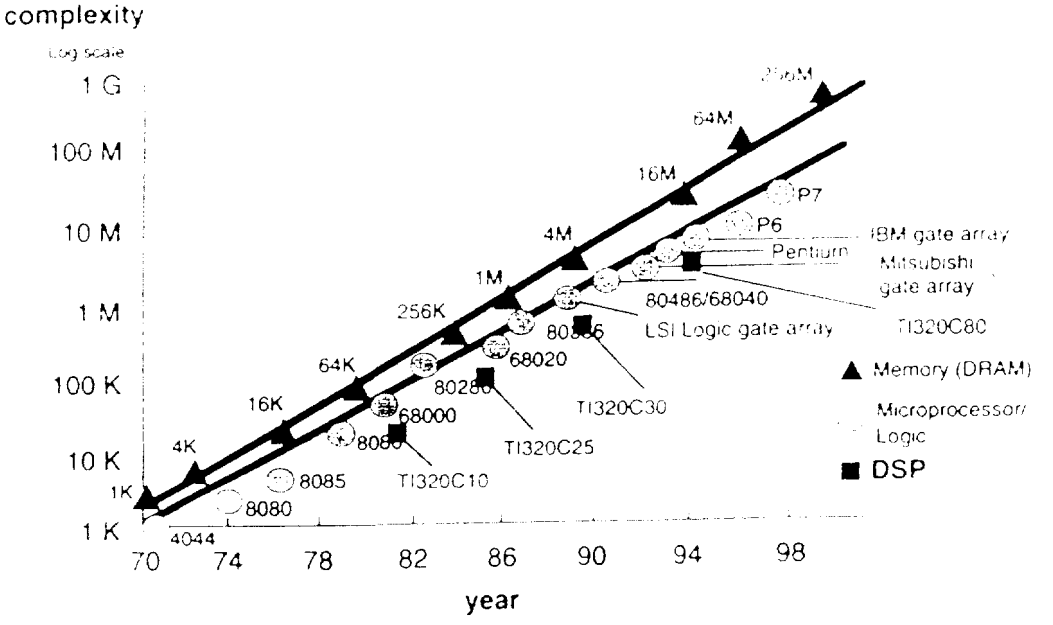

FIGURE 30.10