IBM *U.S. Announcement Oct 1985*

NUMBER   185-128
DATE   851015
TYPE   Product
TITLE   IBM PERSONAL COMPUTER VOICE COMMUNICATIONS OPTION

ABSTRACT   The IBM Personal Computer Voice Communications Option (#4771)
   adds specialized processing capability to emulate a modem, record and
   play back voice (audio), recognize voice commands, convert text to
   speech, and recognize and issue telephony signals for the IBM
   Personal Computer, IBM Personal Computer XT, and IBM Personal
   Computer AT.   The option includes the Voice Communications Adapter
   (#4839) and the Voice Communications Operating Subsystem program
   (0708), which enables the functions of the adapter. Information can
   be processed from the IBM Personal Computer memory, an attached
   microphone or telephone, or two telephone lines and output to memory,
   telephone lines, telephone, or an external speaker.

IMKTG   MARKETING INFORMATION
   MARKETING ACTION REQUIRED
        Marketing representatives should thoroughly review the
   marketing materials to correctly position these products for their
   customers.
   MARKETING FOCUS
   SALES COMPENSATION PLAN: Normal provisions apply.
   POINT VALUE: The point value (QMV) is available on HONE by entering
   the command POINTS and the program number or the four-digit machine
   type. QMV is also available on AAS under the mnemonic QSLM.
   MARKETING STRATEGY: These voice products focus on the
   telecommunications environment.   They provide office productivity
   tools with telephone attachment capability.   IBM Personal Computer
   Voice Communications products will complement the use of IBM Personal
   Computers in the office environment, by allowing integration of voice
   and asynchronous communications with IBM Personal Computer user
   applications.
        This announcement and marketing strategy will be supported
   with the following IBM applications and development tools being
   announced today.
   o   Voice/Phone Assistant
            High-function answering machine with remote password
        access and control; voice messages with password access to each;
        remote touch-tone access with transfer to other suitably
        programmed, user provided applications.   See Programming
        Announcement 285-403.
   o   Voice-Activated Keyboard Utility
            Allows programmers to develop and users to execute audio
        application interfaces to control existing applications with
        voice commands.   See Programming Announcement 285-404.
   o   Personal Telephone Manager
            Phone directory services program with flexible formatting,
        powerful search capabilities, appointment or call reminders
        driven by the system clock.   See Programming Product
        Announcements 285-402 and 285-408, and Product Announcement
        185-129.
   o   Augmented Phone Services
            An aid for hearing and/or speech impaired persons to use
        an IBM Personal Computer to conduct phone conversations with

hearing persons at touch-tone phones. The IBM Personal Computer
also acts as an answering machine to store touch-tone keyed
messages as text. See Programming Announcement 285-405.
o   IBM Personal Computer Voice Communications Application Program
     Interface Reference
          Provides the information needed for experienced
programmers to write application programs for voice
record/playback, voice recognition, text-to-speech, telephony and
communications functions that use the IBM Voice Communications
Option. See Programming Announcement 285-406.
MARKETING SUPPORT
          Marketing representatives will receive marketing support from
designated branch office personnel and the local customer center.
The Voice Communications Option will be included in the Application
Marketing Centers' ongoing IBM Personal Computer marketing seminars.
DEMONSTRATIONS: Demonstrations will be available in Customer Centers
and in some Briefing Centers.
HONE INFORMATION: Proposal material will be available via HONE.
ITECHINF   INSTALLATION INFORMATION
   INSTALLATION SUPPORT
   HONE SUPPORT: HONE/EQUAL support is available.
IADMIN   ADMINISTRATIVE INFORMATION
   SERVICE DIVISION
          National Service Division.
   ORDERING INFORMATION
          The Voice Communications Option is to be ordered as feature
#4771 of 5150-ZZZ or the applicable 5150, 5160, or 5170 System Unit.
          The Voice Communications Adapter is to be ordered as feature
#4839 of 5150-ZZZ or the applicable 5150, 5160, or 5170 System Unit.
   REQUEST FOR PRICE QUOTATION
          RPQs are not accepted.
   ADDITIONAL INFORMATION
          See the unclassified section, which may be reproduced and
   distributed.
ISPONSOR   SPONSORING EXECUTIVES
   National Accounts Division
   R. J. Murphy
   Acting Vice President, General and Office Systems Marketing
   National Marketing Division
   W. H. McCahan
   Vice President, Product Marketing
OVERVIEW   HIGHLIGHTS
          The Voice Communications Adapter and Operating Subsystem
   Program provide IBM Personal Computers with the capability to:
   o   Attach one telephone, one or two telephone lines, one microphone,
        and one speaker
   o   Emulate modem (modulate/demodulate) functions compatible with
        Bell 103A, and Bell 212A standards
   o   Support data transmission rates of 110, 300, or 1200 bits per
        second using asynchronous data communication protocols
   o   Use voice as input for data entry or commands through a connected
        microphone or telephone
   o   Generate synthetic English speech from ASCII data streams to read
        text and data through a connected telephone, telephone line, or
        speaker

o   Digitize and compress voice or other audio received through a
     connected telephone, telephone line, or microphone
o   Reconstruct and playback voice through a connected telephone,
     telephone line, or speaker
o   Detect and/or generate touch-tone signals. Detection allows
     remote keyboard entry. Generation allows autodialing.
o   Generate pulse dial tones to allow autodialing on pulse phone
     systems
o   Detect call progress signals: busy, ringing, voice, silence,
     etc.

DESCRIPTION
     The IBM Personal Computer Voice Communications Option includes
a multifunction adapter card that may be installed in an IBM Personal
Computer, IBM Personal Computer XT, or IBM Personal Computer AT.
When this option is installed, the IBM Personal Computer is extended
to provide voice command recognition, synthetic voice, voice (audio)
record/playback, line monitoring, telephony, and, in addition, an
internal modem to Bell 103A/212A standards.
     The Voice Communications Operating Subsystem provided with the
Voice Communications Option enables the Voice Communications Adapter
to emulate an asynchronous modem, to record and play back voice, to
recognize voice commands, to convert text to speech, to aid in using
some PBX/CBX functions, and to recognize signals on a telephone line
such as touch-tone and off-hook. Applications issue function calls to
this subsystem program through the application program interface.
This is defined in the IBM Personal Computer Voice Communications
Reference (see Programming Announcement 285-406). This programming
interface is designed for application development for the following
function sets:

o   Asynchronous Data Communications
         Asynchronous communications protocols and modem functions
     are emulated. No external modem is required. Full duplex Bell
     103A (110 or 300 bps), and Bell 212A (1200 bps) modem compatible
     capabilities are supported and selectable by communication
     applications.
o   Voice Command Recognition
         Recognition is based on speaker-dependent,
     discrete-utterance recognition (words and/or phrases). A speaker
     may train one or more vocabularies to be shared by speech-based
     applications. Each application will provide a speech language
     that defines the spoken commands that it accepts and groups the
     vocabulary into subvocabularies to be activated at the
     appropriate time.
o   Text-To-Speech (Synthetic Voice)
         A serial ASCII data stream directed to the Voice
     Communication Text-to-Speech component will be transformed into
     synthetic voice (speech). Rules provide for abbreviations,
     acronyms, and other variances. For example, in "Dr. Smith" and
     "Sunset Dr.," Doctor and Drive will be spoken, respectively.
o   Voice (Audio) Record/Playback
         The operating subsystem digitizes voice and mathematically
     compresses it. Three compression options are provided to meet
     differing storage requirements and voice quality playback.
     Recording rates and minutes per megabyte of storage are:
         Bytes/second   Minutes/megabyte

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3.6K              4.5
2.4K              6.8
1.8K              9.2
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      Periods of silence in speech are compressed and will
require less storage.
o   Line Monitoring
      Applications can receive touch-tone signals from remote
telephones to be used as commands or data entry.
o   Telephony
      Applications can initiate telephone calls (autodial) and
support other PBX functions (such as "Adding a Party"), and can
receive telephone calls by taking advantage of the telephony
component of the Voice Communications Application Program
Interface of the Operating Subsystem.

DEMONSTRATION
      An Exploring Voice Communications diskette is included in the
Option so each user can demonstrate the highlighted functions. This
demonstration requires an IBM Personal Computer with 320Kb of memory.
      In order to demonstrate the functions provided by Exploring
IBM Voice Communications, please ensure that correct installation of
this option and of attachments, such as the telephone line, are
performed.
      The Telephone Management demonstration component of the
Exploring IBM Voice Communications program permits placing of local
telephone calls. In certain areas the telephone company may charge a
toll for certain exchanges. Therefore, you may wish to control
access to this component of the demonstration to prevent toll
charges.

APPLICATION DEVELOPMENT TOOLS
      Voice Communications Application Program Interface Reference
-- Programming Announcement 285-406.
      Provides the information needed for experienced assembler
language programmers to write application programs for voice
record/playback, voice recognition, text-to-speech, telephony and
communications functions that use the IBM Personal Computer Voice
Communications Option. A Tool Kit diskette of programs provides aids
to developers of voice command driven applications, and provides
examples of voice record/playback, text-to-speech, and telephone
dialing programs.
      Voice-Activated Keyboard Utility -- Programming Announcement
285-404.
      Allows users with programming aptitude to develop, and all
users to execute audio application interfaces to control existing
applications with voice commands.

CUSTINFO PUBLICATIONS
o   Installation and Setup Guide -- included with Voice
     Communications Option (#4771) or Voice Communications Adapter
     (#4839)

UPDATES
o   Hardware Maintenance and Service Manual Update IBM Personal
     Computer (6280704)
o   Hardware Maintenance and Service Manual Update IBM Personal
     Computer XT (6280697)
o   Hardware Maintenance and Service Manual Update IBM Personal
     Computer AT (6280690)

o   Technical Reference Update (55X8864) - available only to
     subscribers of Hardware Technical Reference service for options
     and adapters
SCHEDULE
     The Personal Computer Voice Communications Option (#4771) is
available now.
     Availability of the Voice Communications Adapter (#4839), or
the Voice Communications Operating Subsystem (0708) when ordered
separately, is planned for the first half of 1986.
TECHINFO TECHNICAL INFORMATION
   SPECIFIED OPERATING ENVIRONMENT
   HARDWARE REQUIREMENTS: The Voice Communications Option (#4771)
   includes the Voice Communications Adapter and the Voice
   Communications Operating Subsystem program.
     The adapter is installed in a full-size system expansion slot
of an IBM 5150, 5160 or 5170 System Unit with at least one dual sided
diskette drive.
     Memory requirements depend upon DOS level, application
requirements, and functions in use serially or concurrently.
Functions can be memory resident for performance reasons, or loaded
as required. Voice Communications Operating Subsystem memory needs
will vary from 22Kb to 256Kb. Each application will indicate its own
memory requirements. The Exploring IBM Voice Communications program
requires a 5150, 5160, or 5170 System Unit with 320Kb of memory.
   SOFTWARE REQUIREMENTS: IBM Personal Computer Disk Operating System
   Version 2.1 or later is required.
   ADDITIONAL REQUIREMENTS: The following are also required:
   o   Connected telephone lines (one or two) for asynchronous
        communications. Communications programs must be written to the
        Voice Communications Application Program Interface of the
        Operating Subsystem.
   o   Connected telephone and line for telephony and voice
        conversations
   o   Connected microphone or telephone for voice command recognition
        or voice recording
   o   Connected speaker, telephone, or telephone line for audio output
        from record/playback or text-to-speech
   o   Interrupt level 2, 3, 4, or 7 must be available. Applications
        written in BASIC (trademark of Microsoft Corp.) may preclude use
        of 3 and 4.
   TECHNICAL DATA: The Voice Communications Adapter contains the
   following major functional components:
   o   Texas Instruments TMS320 programmable signal processor.
   o   20Kb of RAM.
   o   Interrupt level jumper for levels 2, 3, 4, and 7.
   o   Connectors for attachment of one telephone and one or two
        telephone lines.
   o   Special telephone cables included. Cables use RJ11C connectors
        to connect to modular telephone wall outlets and telephones.
   o   Subminiature audio-type connectors for attachment of a microphone
        and a speaker.
     The Operating Subsystem enables the adapter to provide the
voice, telephony, and communications functions indicated. A
subsystem kernel residing both in IBM Personal Computer memory and
adapter memory manages the adapter.

o   The Voice Communications Adapter has the capacity to execute
     certain combinations of Voice Communications functions
     concurrently. The Operating Subsystem manages memory on the
     adapter card in two partitions. A function can be active in one
     partition, concurrent with a function in the other. The
     functions are uniquely assigned to partitions, as follows:
     -    One partition is used to execute either local telephony
          services or remote phone line monitoring.
     -    The other partition is used to execute the following, one at
          a time: voice record/playback, voice recognition,
          text-to-speech, or asynchronous communications.
          Further limitations on the concurrent operation of Voice
Communications functions may be imposed by the IBM Personal Computer
system, the particular operating system being used, or the nature of
the applications.

SECURITY, AUDITABILITY, AND CONTROL

          An IBM Personal Computer with IBM Personal Computer Voice
Communications Option can be used and managed so as to limit the risk
of unintended modification, destruction, or disclosure of sensitive
data. User management is responsible for evaluation, selection, and
implementation of these features, for administrative procedures, and
for appropriate controls in application systems.

          If sensitive data is sent over external communications
facilities, user management may wish to pursue the application of
cryptography.

PLANNING INFORMATION

ORDERING INFORMATION: Orders for any quantity may be taken by NAD/NMD
marketing representatives.

          Orders for any quantities less than 20 may be taken by IBM
Product Centers. Each Product Center will take and process orders
within its trading area.

CUSTOMER RESPONSIBILITY: To install this option, the customer is
responsible for configuring the system with the necessary hardware to
serve the application. The customer is also responsible for program
setup and operation, implementation of backup procedures, and
applicable problem determination procedures. The user should be
familiar with the operation of both the IBM Personal Computer and the
IBM Personal Computer Disk Operating System.

          The customer must determine the need for these options and
install them in the IBM Personal Computer system unit if desired.

INSTALLABILITY: Information pertaining to the installation and
operation of the IBM Personal Computer Voice Communications Option is
contained in the documentation shipped with the product. It is the
users' responsibility to install and operate this option following
the guidelines contained in the documentation.

LIMITATIONS: The following limitations apply:
o   Only one adapter may be installed in a system unit, and it must
     not be in a slot adjacent to an Enhanced Display Station
     Emulation Adapter (for attachment to System/36 or System/38).
     See "Hardware Compatibility" below, for more information.
o   The FCC registration of the adapter is valid only when used with
     the IBM Voice Communications Operating Subsystem program.
o   Connected telephone lines must be analog (an analog line must be
     installed if on a digital PBX or CBX).
o   Voice-Activated Keyboard Utility runs with applications that do

not interfere with normal BIOS or DOS keystroke data stream
buffer operations.
o   Only application programs written for the IBM Voice
Communications Adapter and Operating Subsystem can use these
products. Programming requires assembler language or higher
level language linked with assembler.
o   For multiline phones, a locally purchased adapter may be required
to allow attachment to this adapter.
HARDWARE COMPATIBILITY: The following IBM Personal Computer hardware
special features have been tested and are compatible with the IBM
Personal Computer Voice Communications Option:
     Asynchronous Communications Adapter (#2074)
     SDLC Communications Adapter (#1205)
     PC Network Adapter (#0213)
     Personal Computer Cluster Adapter (#1206)
     3278/79 Emulation Adapter (#2507)
     Monochrome Display and Printer Adapter (#4900)
     Color/Graphics Monitor Adapter (#4910) with 5153 Color Display or
     5154 Enhanced Color Display
     Enhanced Color Graphics Adapter (#1200)
     Printer Adapter (#5200)
     256Kb Memory Expansion Option (#1209)
     512Kb Memory Expansion Option (#0203)
     Serial/Parallel Adapter (#0215)
     Token-Ring Network Adapter (#9100) (a)
     Enhanced Display Station Emulation Adapter (#2879) (b)
(a)For 5160 or 5170 only, the IBM Token-Ring Network (available 3rd
    quarter 1986)
(b)For 5160 or 5170 only. This adapter and the Voice Communications
    Adapter must not be installed in adjacent expansion slots.
TECHNICAL ASSISTANCE
        The IBM Personal Computing Assistance Center (PCAC) will
provide technical and installation assistance to eligible IBM
customers.
ORDERING CHARGES, TERMS, AND CONDITIONS
   TERMS AND CONDITIONS
   MACHINE GROUP: A
   IBM HOURLY SERVICE RATE CLASSIFICATION: 2
   CUSTOMER SETUP: This option is a customer setup (CSU) feature. CSU
   allowance is one day. Detailed setup instructions are included with
   each feature. Setup service is available from the IBM National
   Service Division at IBM hourly rates and minimums.
   WARRANTY PERIOD: One year for the adapter. None for the Operating
   Subsystem program. The provisions of the IBM Program License
   Agreement apply. A copy of the Agreement is shipped with each
   program, within the Voice Communications Option package.
   WARRANTY SERVICE: Warranty service is Customer Carry-In Repair of the
   system unit (5150, 5160, 5170) with the Voice Communications Option
   (#4771) or Adapter (#4839) installed. Warranty service is described
   in the Agreement for Purchase of IBM Machines (Z120-2892) and the
   Amendment for IBM Service/Exchange Center Services (Z125-3385-01).
   WARRANTY OPTION: IBM On-site Repair (IOR). See "Charges" below.
   ADMINISTRATION OF WARRANTY: Service for the IBM Voice Communications
   Adapter, if the warranty period extends beyond that of the base
   system unit, will require the customer to provide proof of purchase

when requested.
MAINTENANCE SERVICE: Maintenance service for the adapter is available
as part of an IBM Personal Computer System Unit under the IBM
Maintenance Agreement (Z125-3275) and the Amendment for the IBM
Service Exchange Center Services (Z125-3385-01).
HOURLY SERVICE: Hourly service may be obtained by calling the IBM
Service/Exchange Communication Center's (S/ECC) toll-free number
800-428-2569.
VOLUME PROCUREMENT AMENDMENT (VPA): Normal IBM VPA provisions apply.
Features are eligible for a discount on existing VPAs when installed
within the contract period.
SPECIAL BIDS: Special bid provisions apply.
EDUCATIONAL ALLOWANCE: An educational allowance of 20% is available
to qualifying institutions. The educational allowance is not
additive to any other discount or allowance.
FINANCING: This option is eligible for a range of IBM Credit
Corporation term leases and installment payment plans for commercial
and state and local government customers.
CHARGES

	Feature Number	Part Number	Single Unit Purchase Price	Minimum Warranty Option Charge (IOR)
Feature for 5150, 5160, or 5170				
Voice Communications Option	#4771	6294771	$1,250	--
Voice Communications Adapter*	4839	7684839	1,200	$11

Annual Minimum Maintenance Charges

	Feature Number	IBM On-site Repair	Customer Carry-in Repair
Voice Communications Adapter	#4839	$40	$30

* Not FCC Approved without Voice Communications Operating
    Subsystem program.
PACKAGING: The Voice Communications Option and Voice Communications
Adapter are packaged as follows:

	Voice Communications Option (#4771)	Voice Communications Adapter (#4839)
Voice Communications Adapter	X	X
Telephone Cables	X	X
Installation and Setup Guide	X	X
Diskettes		
Voice Communications Operating Subsystem*	X	
Exploring Voice Communications Program	X	
Adapter and Systems Diagnostics:		
IBM PC and PC XT	X	X
IBM PC AT	X	X

* Feature 0708 of 5870-LLA. Required for FCC approval to attach
  telephone lines, and to enable functions of the adapter.