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**EPSON
PX-16**

SYSTEM GUIDE

PREFACE

<The purpose of this manual>

This manual explains the basic operations of the PX-16 and the specifications of the PX-16 operating system, firmware, interfaces, etc. The purpose of this manual is to let and software houses and third parties, who develop application software and hardware options for the PX-16, have enough information to develop the PX-16 systems.

The reader is assumed to be familiar with the following knowledge;

- Basic knowledge about MS-DOS
- General knowledge of assembler programming
- General knowledge on the instructions of CPU 8088

Basic operating instructions for the PX-16 are also included in this manual.

<Dealing with this manual>

There are four kinds of PX-16 manuals prepared.

- 1) PX-16 System Guide
- 2) PX-16 MS-DOS Reference Manual
- 3) PX-16 GW-BASIC Reference Manual
- 4) Operating Instructions for each optional units

All the necessary information to understand about the PX-16 system are explained in these four manuals. This manual, PX-16 System Guide, is written for the system developers with detailed information about the PX-16. However, any third party developers providing PX-16 based systems may need to include information from this manual in their own user's guide.

Please make sure to include the following information in the user's manual.

- Attention notes on "Introductions"
- Recharging procedure and notes on "2.1.3 Batteries and recharging"

Please include information from the following sections if needed.

- 2.1.1 Unit assembly
- 2.1.2 Switches
- 2.1.4 Starting and operation
- 3.4 The Disk Operating System
- Chapter 4 Interface ; explanations and notes on option units

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<The construction of this manual>

This manual is a guide to the PX-16 system, with basic operating instructions and an explanation of the PX-16 functions. This manual consists of five chapters and an appendix.

Chapter 1 PX-16 General Overview

Describes features, appearance and system configurations of the Epson portable computer PX-16.

Chapter 2 Operating Instruction

Describes basic operating instructions including unit assembling, switch operations and recharging operations.

Chapter 3 Base Unit

Describes all the PX-16 system operations including memory access, system start and termination, interrupts, and slave CPU operations. This chapter also explains BIOS functions, I/O port accessing and power supply operations.

Chapter 4 Interface

Describes specifications and operations of all the interfaces; cartridge1 interface, cartridge2 interface, system bus, expansion interface, RS-232C interface, bar-code reader interface, printer interface, keyboard interface, touch keyboard interface and RAM board interface.

Chapter 5 Development Environment

Describes operations of application programs development including usage of development utilities and development tool.

Appendix

Describes the differences between HC boot mode and PC boot mode. Appendix also includes the PX-16 character-sets, sample programs and optional cable specifications and circuit diagrams.

<Before reading this manual>

(1) System component type

The PX-16 consists of a base unit and a variety of different optional units. The variety of optional units described in this manual are not sold in every country. Some are sold worldwide, but some are sold only on the specific market. Therefore, it doesn't mean you can get every unit, even if the explanation for the unit is described in this manual.

The composed units of PX-16 and the countries dealing in them are as follows.

name of units	Europe	Oceania	S.E.Asia	US/Canada	Japan
Base Unit	o	o	o		o
Standard Keyboard	o	o	o		JIS K/B
LCD80	o	o	o		o
LCD80/2	o	o	o		x
LCD40	o	o	o		o
CRT/FDD Cartridge	o	o	o		x
Universal Cartridge2	o	o	o		o
Blank Cartridge2	o	o	o		o
Cartridge Printer H	o	o	o		kana ver.
ROM Cartridge	(forPX-4)	(forPX-4)	(forPX-4)		(forHC-40)
RAM Cartridge	(forPX-4)	(forPX-4)	(forPX-4)		(forHC-40)
IC RAM Card Cartridge	x	x	x		o
Universal Cartridge1	o	o	o		o
Blank Cartridge1	o	o	o		o
384KB RAM Board	o	o	o		o
Disk Unit	o	o	o		o
TF-16	o	o	o		x
Asynchronous RS board	o	o	o		o
Development Tool	o	o	o		o
Japanese ROM set	x	x	x		o

(note) We don't know about the U.S. and Canada, yet.

name of units		Europe	Oceania	S.E.Asia	America	Japan
AC Adapter	H00KAW	x	x	Taiwan Korea		x
	H00KBW	o	o	HongKong Singapore		x
	H00KAJ	x	x	x		o

(2) Name of products in this manual

The following personal computers are mentioned in this manual.

IBM PC series (IBM PC, IBM PC/XT, IBM PC/AT)

They are the products of International Business Machine Corporation.

IBM 5550 series

They are the products of IBM Japan, sold only in Japan.

NEC 9800 series

They are the products of NEC Corporation, sold only in Japan.

EPSON PC series (EPSON PC, EPSON PCe, EPSON PC AX, etc.)

They are the products of Seiko Epson Corporation.

They are compatible machines of IBM PC series.

EPSON PCe is a compatible machine of IBM PC/new XT.

EPSON PC-286 series

They are the products of Seiko Epson Corporation, sold only in Japan.

(3) A word "KANJI" used in this manual is a name of the Japanese character set, enabled with a JIS (Japanese) K/B and a Japanese version of Cartridge printer H.

(4) Address Representation

Address are generally represented in hexadecimal notation. I/O addresses are prefixed by "P".

Examples:

0010H Memory address 10H

P10H I/O port address 10H

Note that the contents of I/O addressed may differ during read and write operations.

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INTRODUCTIONS

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INTRODUCTIONS

<Environment on System Use>

The PX-16 is durably designed to protect important data and programs. However, as the PX-16 is a system component type precision machine consisting of electronic parts, please follow the instructions given below when the PX-16 is in use.

1. Be careful not to bump or drop the PX-16. Handle with care especially when the system is being carried in the carrying case or in the brief case.
2. Do not leave or set the PX-16 system at any place subject to direct sunlight or dust.
3. Do not leave the PX-16 system in an automobile or any other place subject to high temperature or humidity.

Use the PX-16 system in the following environment.

Temperature:	in usage	5 - 35 degrees°C
	in safekeeping	-20 - 50 degrees°C
Humidity:	in usage	10% - 80%
		(without dew condensation)
	in safekeeping	10% - 80%
		(without dew condensation)

4. Do not use the PX-16 system near a strong magnetic field, like near a television set, a radio, or stereo set.

With LCD80, LCD80/2, LCD40 or Touch Keyboard

1. Be careful not to scratch or damage the LCD with a sharp object such as a pen.
2. Be careful not to break the LCD by bumping or dropping the PX-16 system.
3. Do not use the PX-16 system in a place subject to extremely high or low temperature. Reaction of the LCD display may become dull in low temperature and LCD display may darken in high temperature. (It comes back to normal stage in normal temperature.)

With Disk Unit

1. Use the PX-16 system with the Disk Unit on a flat hard surface.
2. Move the PX-16 system with the Disk Unit carefully so that the Disk Unit is not damaged, especially when a HDD is installed.
3. Never bump or drop the PX-16 system with the Disk Unit when carrying in a carrying case. Please carefully set the carrying case on a flat hard surface.

<Cautions on operation>

1. Turn the main power off when assembling or disassembling the system. (see 2.2.1)
2. Do not touch electronic parts if not needed. (see 2.2.1)
3. Turn the main power off when any of the optional units needs to be taken out or installed.
4. Make sure that the drive access indicator is set to off, when the system with the Disk Unit or TF-16 is to be turned off.
5. Notice that all the data is destroyed when an optional 384KB RAM board, keyboard or touch keyboard is removed or installed. Save all important data in the RAM disk to the external storage device.