

CUSTOMER NOTIFICATION

SUD-DT-03-0474-E

October 31, 2003

Yoshiro Harada, Senior System Integrator
Microcomputer Group
2nd Solutions Division
Solutions Operations Unit
NEC Electronics Corporation

CP(K), O

Device File for 78K4 Series

DF784218 (V1.13)

User's Manual

[Supported machines/OS]

PC-9800 Series (Windows™ Based)

IBM PC/AT™ Compatibles (Windows Based)

Be sure to read this document before using the product.

CONTENTS

1. OUTLINE	3
2. CONTENTS OF PACKAGE	3
3. USER ENVIRONMENT.....	5
4. CORRESPONDING VERSIONS OF DEVELOPMENT TOOLS	5
5. INSTALLATION	6
6. USAGE	6
7. RELATED DOCUMENTS	7
8. REVISION HISTORY	7

1. OUTLINE

A device file is a binary file that contains device-dependent information and is prepared for each device model or for each product in the same series.

Device files are commonly used with development tools (such as assembler, compiler, and debugger). Employing device files enables generation and debugging of device-unique codes. In addition, when developing applications, device files enable the SFR names unique to the device being used to can be used for programming.

The DF784218 contains device files necessary for developing applications using the μ PD784216A, 784218A, 784216AY, and 784218AY Subseries microcontrollers in the 78K4 Series.

2. CONTENTS OF PACKAGE

The device files included in this product and the corresponding devices are as follows.

Table 2-1. Contents of Package (1/2)

Types	Device File Name	Corresponding Device Name	Device Specification Name	Version
Device file	D4214.78K	μ PD784214	4214	V1.11
	D4214A.78K	μ PD784214A	4214A	V1.00
	D4215.78K	μ PD784215	4215	V1.11
	D4215A.78k	μ PD784215A	4215A	V1.00
	D4215B.78K	μ PD784215B	4215B	V1.01
	D4216.78k	μ PD784216	4216	V1.11
	D4216A.78K	μ PD784216A	4216A	V1.00
	D4216B.78K	μ PD784216B	4216B	V1.01
	DF4216.78K	μ PD78F4216	F4216	V1.11
	DF4216A.78K	μ PD78F4216A	F4216A	V1.00
	D4214AY.78K	μ PD784214AY	4214AY	V1.00
	D4214Y.78K	μ PD784214Y	4214Y	V1.11
	D4215AY.78K	μ PD784215AY	4215AY	V1.00
	D4215BY.78K	μ PD784215BY	4215BY	V1.01
	D4215Y.78K	μ PD784215Y	4215Y	V1.11
	D4216AY.78k	μ PD784216AY	4216AY	V1.00
	D4216Y.78K	μ PD784216Y	4216Y	V1.11
	D4216BY.78K	μ PD784216BY	4216BY	V1.01
	DF4216AY.78K	μ PD78F4216AY	F4216AY	V1.00
	DF4216Y.78K	μ PD78F4216Y	F4216Y	V1.11
	D4217.78K	μ PD784217	4217	V1.12
	D4217A.78K	μ PD784217A	4217A	V1.00
	D4217Y.78k	μ PD784217Y	4217Y	V1.12
	D4217AY.78k	μ PD784217AY	4217AY	V1.00

Table 2-1. Contents of Package (2/2)

Types	Device File Name	Corresponding Device Name	Device Specification Name	Version
Device file	D4218.78k	μ PD784218	4218	V1.12
	D4218A.78K	μ PD784218A	4218A	V1.00
	DF4218.78K	μ PD78F4218	F4218	V1.12
	DF4218A.78K	μ PD78F4218A	F4218A	V1.00
	D4218Y.78K	μ PD784218Y	4218Y	V1.12
	D4218AY.78K	μ PD784218AY	4218AY	V1.00
	DF4218Y.78k	μ PD78F4218Y	F4218Y	V1.12
	DF4218AY.78K	μ PD78F4218AY	F4218AY	V1.00
Database file	S421x.78K, S421xY.78K, S4217.78K, S4217Y.78K, S4218.78K, S4218Y.78K			

The Device Specification Name is the character string specified as “-c *device specification name*” (device type specification option), “#pragma pc(*device specification name*)” in C source in the CC78K4 (C compiler), and “\$PROCESSOR(*device specification name*)” in assembler source in the RA78K4 (assembler).

The database file is required when using the system simulator SM78K4. This file is also included in the SM78K4. Installation of the database file can be selected when installing the device file and the SM78K4.

It is recommended to use the latest version of the database file. If this file already exists when the database file is being installed using a device file installer, you are asked if you want to overwrite the file. At this time, confirm the time stamp and make sure that the file being installed is the latest version (note, however, that this file is always overwritten when installing the SM78K4).

The file is not necessary when using the integrated debugger ID78K4-NS or ID78K4. Therefore, you don't have to install this file.

3. USER ENVIRONMENT

Like development tools, device files are available for Windows.

User environment for device files is as follows.

Machine	Operating System
PC-9800 series, IBM PC/AT compatible machines	Windows NT 4.0
	Windows 98
	Windows 2000
	Windows Me
	Windows XP

4. CORRESPONDING VERSIONS OF DEVELOPMENT TOOLS

The corresponding versions of the DF784218 and 78K4 Series development tools made by NEC Electronics are shown below. Use these tools in the following combinations.

Tool Used	Version of Corresponding Tool
C compiler package CC78K4	V2.30 or later
Assembler package RA78K4	V1.50 or later
Integrated debugger ID78K4-NS	V2.31 or later
Integrated debugger ID78K4	V2.30 or later
System simulator SM78K4	V2.30 or later

Windows and Windows NT are either registered trademarks or trademarks of Microsoft Corporation in the United States and/or other countries.

PC/AT is a trademark of International Business Machines Corporation.

5. INSTALLATION

Device files are included on one floppy disk. Use the device file installer (DFINST) included in the NEC Electronics development tools to install the device file.

Note A self-extraction file (an execution file) is downloaded along with device files with ODS (online delivery service). If this file is executed, a disk image is created. Copy this to hard disk or to a floppy disk and then begin the installation process.

The installation procedure is explained below.

- (1) Start Windows.
- (2) Start the device file installer (DFINST). If the NEC Electronics development tool has been installed in the standard directory, the device file installer will be in *installed drive\Nectools32\bin*.
- (3) If installing from the floppy disk, insert the floppy disk in the floppy disk drive.
- (4) Click the **Install** button.
- (5) If installing from the floppy disk, use the **FD Browse** button to display the path where the disk image (icon) is located. Use the **Browse** button to do this if installing from hard disk.
- (6) Necsetup.ini file and _csetup.ini file are displayed in the file list of the dialog box that appears after step (5). Select _csetup.ini to install the English version and Necsetup.ini to install the Japanese version.
- (7) Follow the installation wizard to continue installation.

6. USAGE

Refer to the user's manual of each tool listed in **7. RELATED DOCUMENTS** for details of how to use the device file.

7. RELATED DOCUMENTS

The documents related to the DF784218 are listed below.

User's Manuals
μ PD784216A, 784218A, 784216AY, and 784218AY Subseries
78K/IV Series Instruction
CC78K4 C Compiler Package Operation
CC78K4 C Compiler Package Language
RA78K4 Assembler Package Operation
RA78K4 Assembler Package Assembly Language
RA78K4 Assembler Package Structured Assembly Language
ID78K4-NS Integrated Debugger Operation
ID78K4 Integrated Debugger Operation
SM78K4 System Simulator Operation

8. REVISION HISTORY

1. V1.00

(1) First edition

2. V1.01

(1) Addition of the following devices

μ PD784217, 784218, 78F4218, 784217Y, 784218Y, 78F4218Y

(2) Correction of SFR functions

Special Function Register Name	Changed Item	Before Change	After Change
P10.3	0FF0AH.3	Attribute	Read-only
PM10.3	0FF2AH.3	Attribute	Read-only
PU10.3	0FF3AH.3	Attribute	Read-only
ASIS1	0FF72H	Attribute	R/W
ASIS2	0FF73H	Attribute	R/W
DAD	0FFB2H.4	Attribute	R/W
CLD	0FFB2H.5	Attribute	R/W
PU103	0FF3AH.3	(Newly added.)	–
DACS0	0FF84H	Attribute	Accessible in 1-/8-bit units
DACS1	0FF85H	Attribute	Accessible in 1-/8-bit units

(3) Addition of the following interrupt

- TRAP0 (interrupt request for operand error interrupt)

(4) Support of system simulator SM78K4 V1.42

The DF784218 cannot be used in combination with SM78K4 V1.41 or earlier.

3. V1.11

(1) Addition of the following devices

μ PD784215B, 784216B, 784215BY, 784216BY

(2) Correction of SFR functions

Special Function Register Name		Changed Item	Before Change	After Change
RTPC.6	0FF9BH.6	Attribute	R/W	Read-only
RTPEG	0FF9BH.6	(Deleted.)	–	–
IICC0.0	0FFB0H.0	Attribute	R/W	Write-only
IICC0.1	0FFB0H.1	Attribute	R/W	Write-only
SPRM0.6	0FFB2H.6	Attribute	Read-only	Not accessible
SPRM0.7	0FFB2H.7	Attribute	Read-only	Not accessible
FLPMC	0FF44H	(Newly added.)	–	–

(3) Correction of the following bug

- When using the ID78K4 or ID78K4-NS, the internal RAM area of the μ PD784218, etc., is incorrectly set smaller than the actual size

4. V1.12

(1) Correction of the following bug

- When using the ID78K4 or ID78K4-NS, the oscillation stabilization differs from the actual device.

5. V1.13

(1) Addition of the following devices

μ PD784216A, 784216AY, 784217A, 784217AY, 784218A, 784218AY, D784214A, D784214AY, 784215A, 784215AY, 78F4216A, 78F4216AY, 78F4218A, 78F4218AY

(2) Change of type of file supplied with simulator from DLL-format file to database file