

CUSTOMER NOTIFICATION

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## Device File for 78K0S Series

### DF789136 (V1.01)

## 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.

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## 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 DF789136 contains device files necessary for developing applications using the  $\mu$ PD789104A, 789114A, 789124A, and 789134A Subseries microcontrollers in the 78K0S 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	D9101.78K	$\mu$ PD789101	9101	V1.01
	D9101A.78K	$\mu$ PD789101A	9101A	V1.01
	D9102.78K	$\mu$ PD789102	9102	V1.01
	D9102A.78K	$\mu$ PD789102A	9102A	V1.01
	D9104.78K	$\mu$ PD789104	9104	V1.01
	D9104A.78K	$\mu$ PD789104A	9104A	V1.01
	D9106A.78K	$\mu$ PD789106A	9106A	V1.00
	D9111.78K	$\mu$ PD789111	9111	V1.01
	D9111A.78K	$\mu$ PD789111A	9111A	V1.01
	D9112.78K	$\mu$ PD789112	9112	V1.01
	D9112A.78K	$\mu$ PD789112A	9112A	V1.01
	D9114.78K	$\mu$ PD789114	9114	V1.01
	D9114A.78K	$\mu$ PD789114A	9114A	V1.01
	D9121.78K	$\mu$ PD789121	9121	V1.01
	D9121A.78K	$\mu$ PD789121A	9121A	V1.01
	D9122.78K	$\mu$ PD789122	9122	V1.01
	D9122A.78K	$\mu$ PD789122A	9122A	V1.01
	D9124.78K	$\mu$ PD789124	9124	V1.01
	D9124A.78K	$\mu$ PD789124A	9124A	V1.01
	D9131.78K	$\mu$ PD789131	9131	V1.01
	D9131A.78K	$\mu$ PD789131A	9131A	V1.01
	D9132.78K	$\mu$ PD789132	9132	V1.01
	D9132A.78K	$\mu$ PD789132A	9132A	V1.01

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

Types	Device File Name	Corresponding Device Name	Device Specification Name	Version
Device file	D9134.78K	$\mu$ PD789134	9134	V1.01
	D9134A.78K	$\mu$ PD789134A	9134A	V1.01
	D9144.78K	$\mu$ PD789144	9144	V1.01
	D9146.78K	$\mu$ PD789146	9146	V1.01
	D9154.78K	$\mu$ PD789154	9154	V1.01
	D9156.78K	$\mu$ PD789156	9156	V1.01
	DF9116.78K	$\mu$ PD78F9116	F9116	V1.01
	DF9116A.78K	$\mu$ PD78F9116A	F9116A	V1.01
	DF9116B.78K	$\mu$ PD78F9116B	F9116B	V1.00
	DF9136.78K	$\mu$ PD78F9136	F9136	V1.01
	DF9136A.78K	$\mu$ PD78F9136A	F9136A	V1.01
	DF9136B.78K	$\mu$ PD78F9136B	F9136B	V1.00
	DF9156.78K	$\mu$ PD78F9156	F9156	V1.01
Database file	S910X.78K, S911X.78K, S912X.78K, S913X.78K, S914X.78K, S915X.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 CC78K0S (C compiler), and “\$PROCESSOR(*device specification name*)” in assembler source in the RA78K0S (assembler).

The database file is required when using the system simulator SM78K0S. This file is also included in the SM78K0S. Installation of the database file can be selected when installing the device file and the SM78K0S.

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 SM78K0S).

The file is not necessary when using the integrated debugger ID78K0S-NS. 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 DF789136 and 78K0S 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 CC78K0S	V1.30 or later
Assembler package RA78K0S	V1.30 or later
Integrated debugger ID78K0S-NS	V2.31 or later
System simulator SM78K0S	V2.30 or later

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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 DF789136 are listed below.

User's Manuals
$\mu$ PD789104A, 789114A, 789124A, 789134A Subseries
78K/0S Series Instruction
CC78K0S C Compiler Package Operation
CC78K0S C Compiler Package Language
RA78K0S Assembler Package Operation
RA78K0S Assembler Package Assembly Language
RA78K0S Assembler Package Structured Assembly Language
ID78K0S-NS Integrated Debugger Operation
SM78K0S System Simulator Operation

## 8. REVISION HISTORY

### 1. V1.00

(1) First edition

### 2. V1.01

(1) Addition of the following devices

$\mu$ PD789106A, 789116B, 789136B

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

(3) Correction of SFR functions

<1> Deletion of EEPROM area

[Affected devices:  $\mu$ PD78F9116, 78F9116A, 78F9116B, 78F9136, 78F9136A, 78F9136B]

<2> Modification of R/W attribute in the following registers

- Bit 0 of ASIM20: Changed from R/W to read-only
- Bit 2 of ADS0: Changed from R/W to read-only

<3> Addition of protect information to the following registers

- TCL2, TMC20, TMC80, ASIM20, BRGC20, INTM0
- OSTs [Affected devices:  $\mu$ PD789101, 789101A, 789102, 789102A, 789104, 789104A, 789111, 789111A, 789112, 789112A, 789114, 789114A, 789144, 789146, 789154, 789156, 78F9116, 78F9116A, 78F9116B, 78F9156]

<4> Modification of protect information of the following registers

- ADM0 [Affected devices: Other than  $\mu$ PD789106A]
- BRGC20 [Affected devices:  $\mu$ PD78F9116B, 78F9156]

**Remark** "Protect information" is information that is used to check the accessible data patterns.