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RENESAS

USER'S MANUAL

Phase-out/Discontinued

PG-1500 CONTROLLER

PC-9800 SERIES (MS-DOS™)-BASED

Document No. EEU-1291C
(O. D. No. EEU-704C)
Date Published July 1995 P
Printed in Japan

SUMMARY OF CONTENTS

MS-DOS is a trademark of Microsoft Corporation.
V30 is a trademark of NEC Corporation.

Major Revisions in This Edition

Page	Contents
Throughout	Deletion of description on PC DOS and PC/AT
p. 1	Upgrading of version of MS-DOS supported
p. 2	Correction of **Table 1-2. PC-9800 Series Models Supported by PG1500C**
p. 36	Correction of default value from 0 to 00000 and addition of Remark on digits on inputting addresses in **Table 4-2. Parameters and Default Values of R Commands**
p. 43	Correction of default value from 0 to 00000 and addition of Remark on digits on inputting addresses in **Table 4-3. Parameters and Default Values of M Commands**
p. 62	Change of ROM to μPD27C2001 in Example of **Figure 5-1. Auto Mode Execution Screen 1**.
p. 63	Change of ROM to μPD27C2001 in Example of **Figure 5-2. Auto Mode Execution Screen 2**.
p. 67	Correction of Remark on digits on inputting addresses in table showing symbols used to explain commands in terminal mode
p. 133	Addition of **APPENDIX B REVISION HISTORY**

The mark ★ shows revised points.

Phase-out/Discontinued

[MEMO]

INTRODUCTION

The PG-1500 Controller is the software which enables more efficient use of the PROM Programmer PG-1500.

If this software is connected to and used on a host machine (PC-9800 Series) in the remote control mode, more sophisticated functions can be used.

The PG-1500 Controller has the following features:

1. Three modes, each having different functions, can be used: control mode, auto mode, and terminal mode.
2. Data can be written to ROM with an extremely small number of operations by specifying appropriate options on start-up (in auto mode).
3. Files in Intel HEX, Motorola S, and TEK expanded HEX formats are supported.
4. By connecting the printer port (parallel interface conforming to Centronics) of the host machine and the parallel interface of the PG-1500, data can be downloaded (from the host machine to the internal memory of the PG-1500) at high speeds.
5. All the functions in the PG-1500's remote control mode are supported as high-level functions.

This manual describes operations when the PG-1500 Controller (Ver. 1.20 or above) and PROM Programmer PG-1500 (Ver. 1.80 or above) are used on MS-DOS™ of the PC-9800 Series.

Phase-out/Discontinued

[MEMO]

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CHAPTER 1 GENERAL

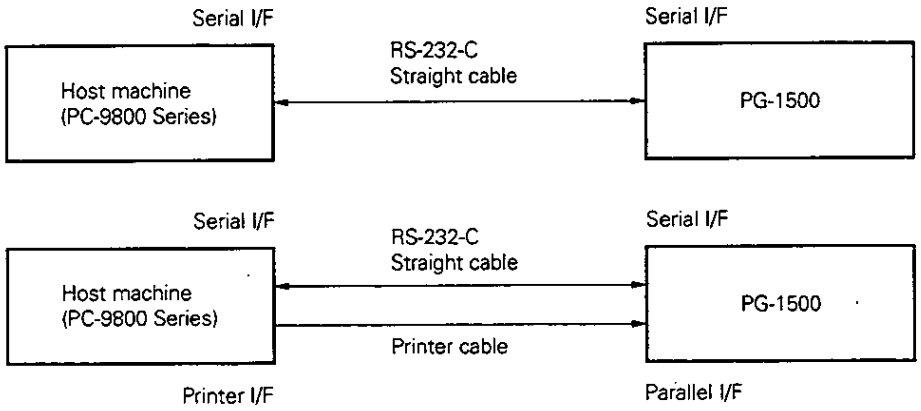
1.1 Product Outline

The PG-1500 Controller (hereafter abbreviated as PG1500C) is software that controls the PG-1500 PROM Programmer and runs on a host machine.

The host machine and the PG-1500 are connected with a serial interface only (hereafter abbreviated as serial I/F) or with a serial I/F and a parallel interface (hereafter abbreviated as parallel I/F). To connect the serial I/F, an RS-232-C interface cable (straight cable) is used. To connect a parallel I/F, use a parallel interface cable (printer cable) conforming to Centronics.

The PG1500C runs under the configuration shown in **Figure 1-1**.

Figure 1-1. Operating Configuration of PG-1500



The host machine and operating system under which the PG1500C operates are shown in **Table 1-1**.

Table 1-1. Host Machine for PG1500C

Host Machine	Execution File Name	OS Name and Version
PC-9800 Series[Note 1]	PG1500.EXE	MS-DOS™ Ver. 3.30 | Ver. 5.00A[Note 2]

Notes 1. Refer to **Table 1-2** for details.

2. Although Ver. 5.00/5.00A has a task swap function, this function cannot be used with this software.

★ **Table 1-2. PC-9800 Series Models Supported by PG1500C**

CPU	8086/V30™	80286	80386	80486
Supported Model	Blank E F 1/2/3 M 2/3 VF 2 VM 0/2/4/21/11 U2 UV 2/21/11 CV21 UR /20 UF XL model 1/2/4[Note] VX 0/2/4/01/21/41 UX 21/41 RX 2/4/21/51 EX 2/4 XL[2Note] RL 2/5/21/51[Note] RA 2/5/21/51 ES 2/5 RS 21/51 T model W2/W5/W7/ S5/F5/F51/F71 LV 21/22 LX 2/4/5/5C LS 2/5 N NV NL	 XL model 1/2/4[Note] VX 0/2/4/01/21/41 UX 21/41 RX 2/4/21/51 EX 2/4 DX 2/5/U2/U5 LX 2/4/5/5C	 XL[2Note] RL 2/5/21/51[Note] RA 2/5/21/51 ES 2/5 RS 21/51 T model W2/W5/W7/ S5/F5/F51/F71 DS 2/5/U2/U5 DA 2/5/7/U2/U5/U7 CS 2/5/5W US /40/80 FS 2/5/7/U2/U5/U7 FX 2/5/U2/U5 LS 2/5 NS /20 NS/E /20/40 NS/T /20/40 NS/L /20/40 NC /40	 FA 2/5/7/U2/U5 BX U2/U6/M2 BA U2/U6/M2 NA /40/120/C/C40/ C120 NS/R /40/120 NS A/A120/A340 NL R

Note The PG1500C can be used only in the normal mode, and cannot be used in the high-resolution mode.

Caution An internal memory capacity of 640 KB or more is necessary.

1.2 Functional Outline

The PG1500C has the following functions:

<1> An "auto write function" which makes it possible to write to ROM[Note] with an extremely small number of operations by specifying appropriate options on start-up (auto mode) is provided.

<2> Files in Intel HEX, Motorola S, and TEK expanded HEX formats are supported.

<3> Data can be downloaded at high speeds (from the host machine to the internal memory of the PG-1500) by connecting the parallel I/F of the host machine and the parallel I/F of the PG-1500.

<4> All the functions of the PG-1500 in the remote control mode are supported (refer to "**1.3 List of PG1500C Commands**").

Note "Writing to ROM" means writing including verification (the function of the RW command of the PG-1500).

Remark The processing time differs depending on the version of the monitor ROM of the PG-1500 and the processing to be performed. When a file is loaded, the processing time differs depending on the size of the file to be transferred and the setting of the I/F. When data is written, it differs depending on the type of the device used and the range of the write address.
To transfer 1M bits of data, for example, it takes about 8 minutes if the serial I/F (with a baud rate of 9600 bps (baud)) is used, and about 4 minutes if the parallel I/F is used.
To write the data of all the addresses of 1M bits, it takes about 2 minutes and half if the μPD27C1001 is used, and about 1 minute and half if the μPD27C1001A is used.

The PG1500C has three different modes, as shown in **Table 1-3**.

Table 1-3. Modes and Functions of PG1500C

Mode	Function
Control mode	Allows you to use PG-1500 easily through selection of operations listed on screen. Auto write command (W) in this mode has same functions as in auto mode.
Auto mode	Sets configuration, selects ROM, loads file, and writes data to ROM (auto write function).
Terminal mode	Reinforces and supports remote control mode of PG-1500.

The auto mode or terminal mode is selected by an option specified on start-up. If this option is omitted, the control mode is selected.

For how to specify the option, refer to "**CHAPTER 3 START-UP**".

Table 1-4 lists the meanings of the symbols and abbreviations used throughout this manual.

Table 1-4. Symbols and Abbreviations Used in This Manual

Symbol, Abbreviation	Meaning
PG buffer	PG-1500 internal memory
ROM_S_ADR	ROM start address
ROM_E_ADR	ROM end address
PG_S_ADR	PG buffer start address
PG_E_ADR	PG buffer end address
XXX	Characters in reverse video
TAB	Tab input
↵	Return input
XXX	Key input
[ ]	Can be omitted
{ }	Either can be selected

Addresses can be input only as a 5-digit hexadecimal number. Six or more digits cannot be input.

1.3 List of PG1500C Commands

Table 1-5 lists the commands of the PG1500C used in the control mode. Table 1-6 shows the commands used in the terminal mode.

Table 1-5. Commands Used in Control Mode

Command Name	Function
W/AUTO	Automatically performs a series of operations (loading file, selecting ROM, and writing to ROM) to write data to ROM in accordance with data of specified configuration file.
R/ROM	Performs operations related to ROM such as reading data from ROM (same as RR, RS, RV, RW, and RZ commands of PG-1500).
M/MEM	Changes, displays, and initializes memory data of PG-1500 (same as MC, MD, and MF commands of PG-1500).
L/LOAD	Transfers file data to PG-1500 (same as LI, LM, LT, PI, PM, and PT commands of PG-1500).
S/SAVE	Saves memory data of PG-1500 to file (same as SI, SM, and ST commands of PG-1500).
O/OS	Starts OS SHELL (once returns control to OS).
C/CONF	Changes configuration setting (configuration file can also be saved on completion of setting).
Q/QUIT	Terminates PG1500C and returns control to OS (configuration file can be saved).

Table 1-6. Commands Used in Terminal Mode

Command Name	Function
RR	Reads ROM data.
RS	Selects ROM.
RV	Compares ROM data with PG-1500's memory data.
RW	Writes PG-1500's memory data to ROM.
RZ	Checks erasure status of ROM.
MC	Changes PG-1500's memory data.
MD	Displays PG-1500's memory data.
MF	Initializes PG-1500's memory data.
LI	Transfers file in Intel HEX format to PG-1500's memory (serial).
LM	Transfers file in Motorola S format to PG-1500's memory (serial).
LT	Transfers file in TEK expanded HEX format to PG-1500's memory (serial).
SI	Saves PG-1500's memory data to file in Intel HEX format.
SM	Saves PG-1500's memory data to file in Motorola S format.
ST	Saves PG-1500's memory data to file in TEK expanded HEX format.
PI	Transfers file in Intel HEX format to PG-1500's memory (parallel).
PM	Transfers file in Motorola S format to PG-1500's memory (parallel).
PT	Transfers file in TEK expanded HEX format to PG-1500's memory (parallel).
? ?	Command help
OS	Starts up OS SHELL (once returns control to OS).

CHAPTER 2 CONNECTIONS

The host machine and the PG-1500 are connected with a serial I/F (RS-232-C) only, or with a serial I/F (RS-232-C) and a parallel I/F (Centronics), as shown in Figure 2-1.

Figure 2-1. Example of Connections between Host Machine and PG-1500

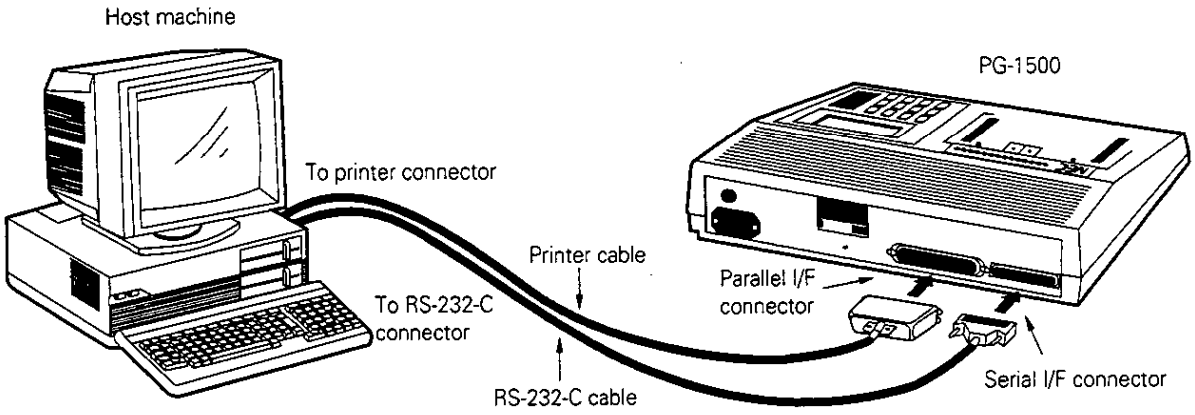


Figure 2-2. Connections of Serial I/F (RS-232-C)

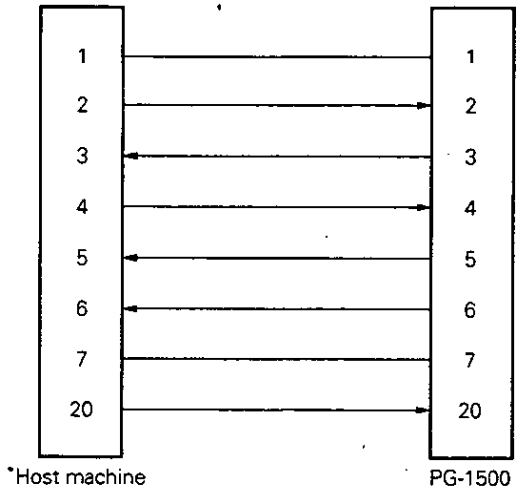
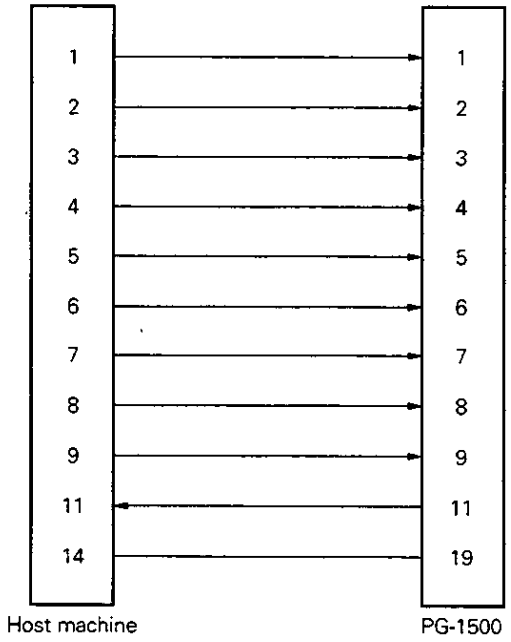


Figure 2-3. Connections of Parallel I/F (Centronics)



For the details on the serial I/F and parallel I/F, refer to the "PG-1500 User's Manual".

CHAPTER 3 START-UP

To start up the PG1500C. input the following command:

A>PG1500 [OPT] [filename] ↵

OPT : option
filename: configuration file name

The option and filename can be input in any order.
Specifically, the option and filename are input as follows to set the respective modes.

(1) Inputting A>PG1500 [filename] ↵ sets the control mode (refer to "CHAPTER 4").

(2) Inputting A>PG1500 –A (or /A) [filename] ↵ sets the auto mode (refer to "CHAPTER 5").

(3) Inputting A>PG1500 –T (or /T) ↵ sets the terminal mode (refer to "CHAPTER 6").

To start the PG1500C in the auto mode, be sure to specify a configuration file name.
If a character other than "A" or "T" is input as the option, an error message is displayed and control is returned to the OS.

3.1 Functions of Options

Table 3-1 shows the input formats and functions of the options.

Table 3-1. PG1500C's Options for Start-up

Mode	Option	Configuration File Name	Function
Control	Not specified	Specified	Reads configuration file[Note 1] specified as filename, makes setting that matches configuration, and waits for command input.
		Not specified	Sets configuration with default values of configuration file, and waits for command input. Because name of file to be loaded is not specified by default value, be sure to specify filename when file is loaded.
Auto	-A /A	Specified	Reads configuration file specified as filename[Note 2], makes setting that matches configuration, and then executes automatic write (series of operations including loading file, selecting ROM, and writing data to ROM). After operations have been completed, terminates PG1500C and returns control to OS.
		Not specified	Waits for input of filename. When filename is input, performs same operation as above.
Terminal	-T /T	Specified	Displays error message and returns control to OS.
		Not specified	Operates as intelligent terminal of PG-1500.
—	Other than above	Specified/ Not specified	Displays error message and returns control to OS.

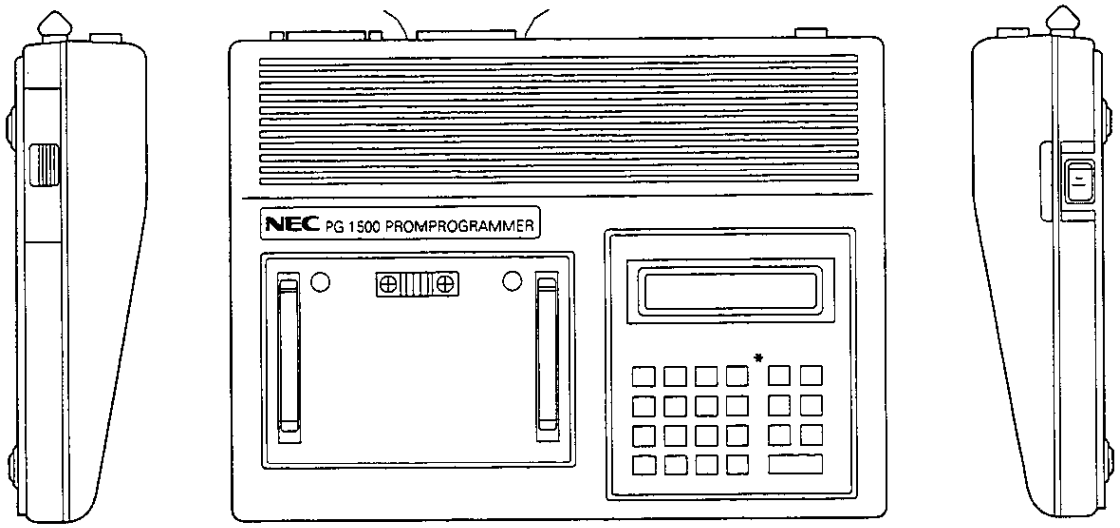
Notes 1. A configuration file is the file that specifies the name of the file to be loaded, the name of the ROM to be used, the split mode, file format, and interface used to load data. For how to create the configuration file and for the details on the default values, refer to "**3.3 Creating Configuration File**".

2. If a file type is omitted when a configuration file name is specified, ".PGC" is assumed.

3.2 Operating Procedure

This section describes the operating procedure of the PG-1500. Figure 3-1 shows the appearance and key switches of the PG-1500.

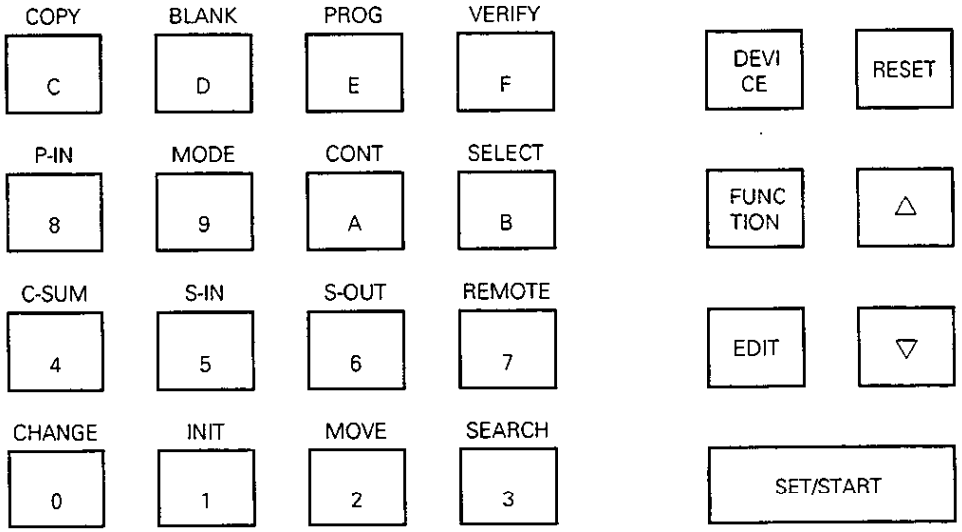
Figure 3-1. Appearance and Key Switches of PG-1500



Left side Front panel Right side

* Key switches

Key switches



Start the PG1500C as follows:

<1> Connect the host machine and the PG-1500 with a serial I/F (RS-232-C) only or with a parallel I/F (Centronics) and a serial I/F (RS-232-C), and turn on the power.

<2> After the OS of the host machine has started up, insert the floppy disk containing the software of the PG1500C into the current drive.

<3> Set the mode of the serial I/F by using the key switches of the PG-1500 (for details on key switch operations, refer to the "**PG-1500 User's Manual**").

(1) Press the [FUNCTION] key to set the function mode.

(2) Press the [MODE] key to set the serial interface setting mode.

(3) Move the cursor by using the [△] key to the position of the parameter whose value or setting is to be changed, and change the parameter value or setting by using the [▽] key.

(4) After setting all the parameters, press the [SET/START] key to end the setting operation.

When the PG-1500 is started up, the set values of the serial I/F used last are retained.
On starting up the PG1500C, the serial standard values shown in Table 3-2 are set to the host machine.
Make sure that these values of the PG-1500 match those of the PG1500C.

Caution To change the standard values of the serial I/F of the PG1500C, operation <7>, which is described below, must be performed.

Table 3-2. Serial Standard Values of PG1500C

Baud rate	9600 bps (baud)
Parity	NON
XON/XOFF control	ON
Data length	8 bits
Stop bit	2 bits

<4> Use the following keys of the PG-1500 to set the respective modes.

(1) Press the [FUNCTION] key to set the function mode.

(2) Press the [REMOTE] key to set the remote control mode.

On the display of the PG-1500, [REMOTE MODE] is displayed.

<5> When the prompt "A>" of the OS is displayed, start up the PG1500C.

(1) Inputting A>PG1500 [filename] [↵] sets the control mode (refer to "CHAPTER 4").
(2) Inputting A>PG1500 –A (or /A) [filename] [↵] sets the auto mode (refer to "CHAPTER 5").
(3) Inputting A>PG1500 –T (or /T) [↵] sets the terminal mode (refer to "CHAPTER 6").

Inputting any of (1) to (3) causes the title message to be displayed and the PG1500C to be started up.
To start up the PG1500C in the auto mode, be sure to specify a configuration file name.
If a character other than "A" or "T" is input as the option, an error message is displayed and control is returned to the OS.

<6> Confirm that the title message has been displayed. Then press the [SET/START] key of the PG-1500 within 3 seconds.
If the setting of the PG-1500 matches the setting of the serial I/F of the host machine, and if synchronization is established, the specified mode is set.

<7> If the setting of the PG1500C is different from that of the serial I/F of the PG-1500, or if the PG1500C is not synchronized with the PG-1500, an error message and the setting of the serial I/F of the host machine are displayed.

Figure 3-2. Example of Display If Setting Is Different

```
ERR40
Serial not ready (Check cable, baud rate, data length, etc.)

Select Q/QUIT , and retry.

B/BAUD RATE     1200    2400    4800    9600    19200    baud

P/PARITY         ODD    EVEN    NON

X/XON            ON     OFF

C/DATA LENGTH     8       7                              bits

S/STOP BIT        2       1                              bits

Q/QUIT
```

To change the setting of the serial I/F of the host machine, select the parameter and content whose value or setting is to be changed by using the [↑]/[↓] keys and [→] / [←] keys, and then press the [↵] key to enter them.

If the setting of the PG-1500 matches the setting of the serial I/F of the host machine, the setting of the serial I/F needs not to be changed.

<8> Before selecting **Q/QUIT** , press the [RESET] key of the PG-1500, and perform operation <4>.

<9> Immediately after selecting **Q/QUIT** , press the [SET/START] key of the PG-1500. If the setting of the PG-1500 matches the setting of the serial I/F of the host machine and if synchronization is established, the specified mode is set.

3.3 Creating Configuration File

The configuration file is the file that specifies the name of the file to be loaded, the name of the ROM to be used, the split mode, file format, and interface used to load data.

By specifying this file and starting up the PG1500C, the PG-1500 is automatically set in accordance with the contents of the file. However, it cannot be used in the terminal mode.

The configuration file is created by either of the following methods:

- Set the configuration area by using the CONF (C) command in the PG1500C control mode and save it as the configuration file when the C command is terminated or when the QUIT (Q) command is executed (refer to "**4.2.7 CONF (C) command**" and "**4.2.8 QUIT (Q) command**").
- Create the file with the editor.

If the file is created with the editor, describe "<Parameter> = <Setting>" for each parameter in Table 3-4. The parameters can be input in any order, and no distinction is made between uppercase and lowercase letters. A space and tab are skipped.

Each parameter must be delimited by a space.

Here is an example of describing the configuration file:

```
Example  FILE = TEST.HEX
         ROM  = UPD27256
         CONV = N
         HEX  = INT
         LOAD = SER
```

When specifying the auto write (W) command in the control mode and the auto mode, be sure to input the name of the file to be loaded.

If the ROM to be used is a silicon signature non-compatible product, be sure to input the corresponding general-purpose PROM product name as the parameter of ROM name.

For the silicon signature compatibility, refer to the "**PG-1500 User's Manual**".

Cautions 1. If any of the parameters for the created file is missing, default values are used in their place (except for the file name and ROM name to be loaded) when the file is read. If an unnecessary parameter is input, it is ignored.

2. If two or more values are specified for one parameter, or if the same parameter is input more than once, an error occurs.

Table 3-3. Contents of Configuration File and Default Values

Parameter	Setting	Explanation	Default Value
FILE (Name of loaded file)	User-specified	Up to Directory : 8 characters Primary name : 8 characters File type : 3 characters If file type is omitted, ".HEX" is assumed.	—
ROM (ROM name)	User-specified	Input in alphabet and numeral[Note 1]	— [Note 2]
CONV (split mode)	N	Normal write	N Normal write
	16/2	16 bits, 2 partitions	
	32/2	32 bits, 2 partitions	
	32/4	32 bits, 4 partitions	
HEX (File format)	INT	Intel HEX format	INT Intel HEX format
	MOT	Motorola S format	
	TEK	TEK expanded HEX format	
LOAD (interface)	SER	Serial specification	SER Serial specification
	PAR	Parallel specification	

★ **Notes 1.** Input the name of a general-purpose PROM with "μ" replaced with "U". Do not omit the part number. Input the name of a device other than the general-purpose PROM with "μP" omitted.

Example To use the μPD27256 general-purpose PROM: Input "UPD27256".
To use μPD75P3108, which is a device other than a general-purpose PROM: Input "D75P3108".

2. When a silicon signature non-compatible product is used with the auto write (W) command in the control mode and in the auto mode, "UPD27256" is set as the default value if no ROM name is input.

3.4 Specifying Configuration File

If a configuration file is specified on starting up the PG1500C, the drive and directory are specified as shown in Table 3-4.

Table 3-4. Specifying Directory of Configuration File

If drive and directory are specified	Specified file is searched from directory of specified drive and read. If specified file is not found, error message is displayed and control is returned to OS.
If drive and directory are not specified	Specified file is searched in the following sequence: <1> Address set in configuration variable (variable name: PGC) <2> Current directory of current drive <3> Address of PG1500.EXE If file is not found in any of the above locations, error message is displayed and control is returned to OS.

If the configuration file contains an error, or if the specified file is not found, an error message is displayed, and control is returned to the OS.

PG1500.EXE needs not to be in the current directory, in which case the path where PG1500.EXE exists must be specified or the path must be modified on start-up.

[MEMO]

CHAPTER 4 CONTROL MODE

The control mode is used to carry out a variety of operations from loading of files to writing them to ROM, using an extremely small number of key operations through selection of operations listed on screen.

Files can be loaded by either using the serial I/F (RS-232-C) only or by using the serial I/F (RS-232-C) and parallel I/F (Centronics) in combination.

The operation in the control mode can be specified by using a configuration file or by user input.

Input on start-up A>PG1500 [filename] ↵

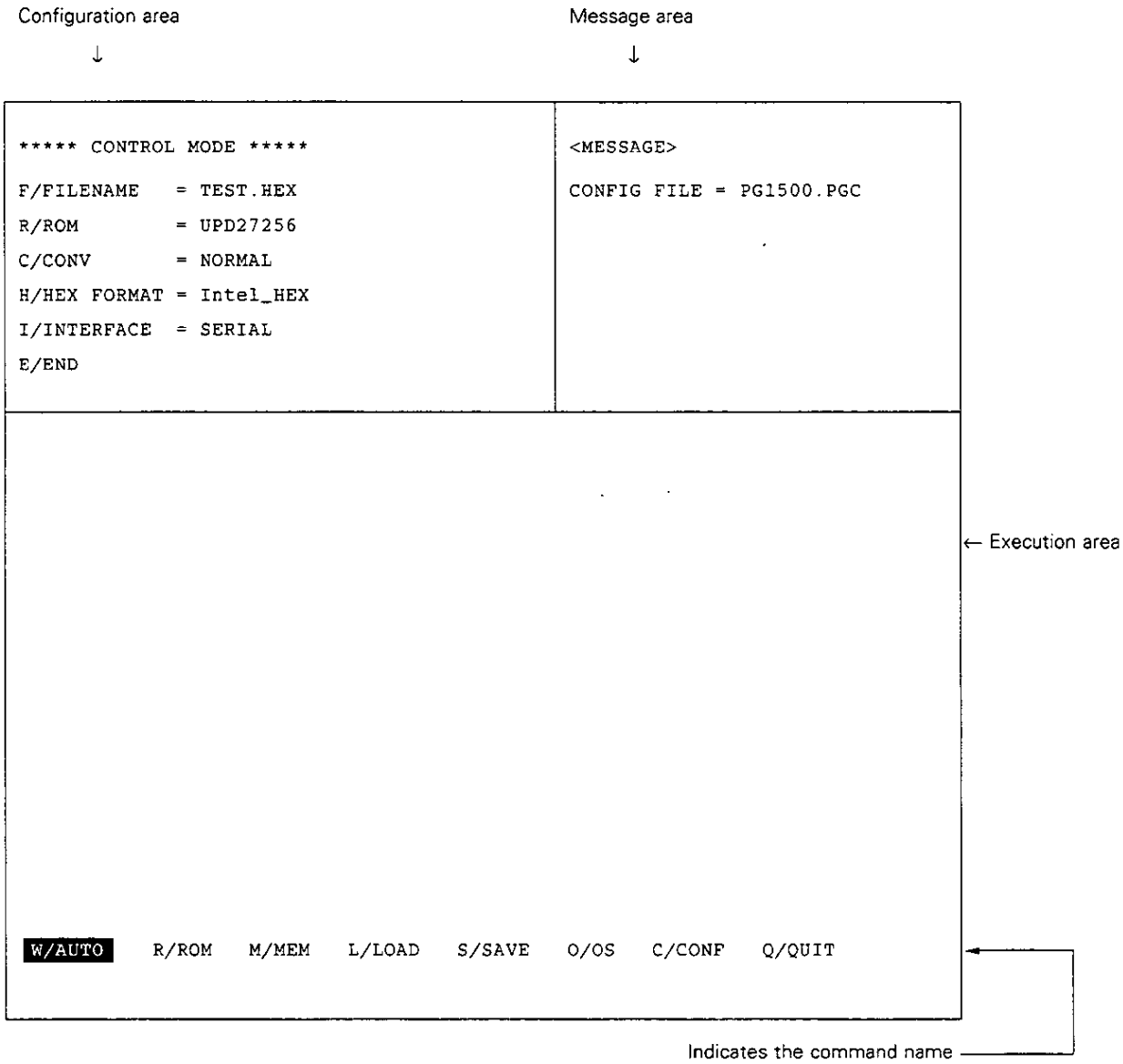
If the ESC key is input during command execution, the execution is stopped and the PG1500C waits for command input[Note]. If CTRL+C is input, the PG1500C is terminated and control is returned to the OS.

Note Except during operation to ROM.

4.1 Screen Display

The screen shown in Figure 4-1 is displayed when the PG1500C is started in the control mode with a configuration file specified. The contents of the specified configuration file are displayed in the configuration area, indicating that the PG1500C is in the command input wait status of the control mode.

Figure 4-1. Screen Image in Control Mode



The screen is divided into three areas: configuration, message, and execution areas.
Each of these areas is described next.

4.1.1 Configuration area

The configuration area at the upper left of the screen displays the values read from the configuration file or default values on starting up the PG1500C. The values displayed in this area can be changed by the CONF (C) command. If parameters different from those displayed in the configuration area are set when a command other than the C command is executed, the values in the configuration area are not changed.

The configuration area parameters are explained below.

<1> FILENAME

The name of the file to be loaded is displayed (even if a drive and directory are specified, only the file name is displayed and the drive name and directory name are not displayed).

If a drive and directory are specified when the LOAD/SAVE command is input, however, they are displayed as specified in the execution area as parameters.

This parameter has no default value.

<2> ROM

Displays the name of the ROM to be written.

As in the case of the "UPD27256", "μ" is replaced with "U" to display the entire name in alphanumeric characters.

Although the default value is not supplemented on starting up, if the ROM name is not input when a silicon signature non-compatible product is used with the auto write (W) command, "UPD27256" is set as the default value.

If a silicon signature non-compatible ROM name is set, either leave blank the ROM name in the configuration area, or set the corresponding general-purpose PROM name. ★

<3> CONV

This parameter displays the address mapping method when the ROM is written. There are four methods to specify partitioning: NORMAL, 16 bits with 2 partitions, 32 bits with 2 partitions, and 32 bits with 4 partitions. The default value is "NORMAL".

Figures 4-2 through 4-5 show the address mapping method for each partition specification.

Figure 4-2. In the Case of "NORMAL" (NN)

The data in the file is written to ROM as is.

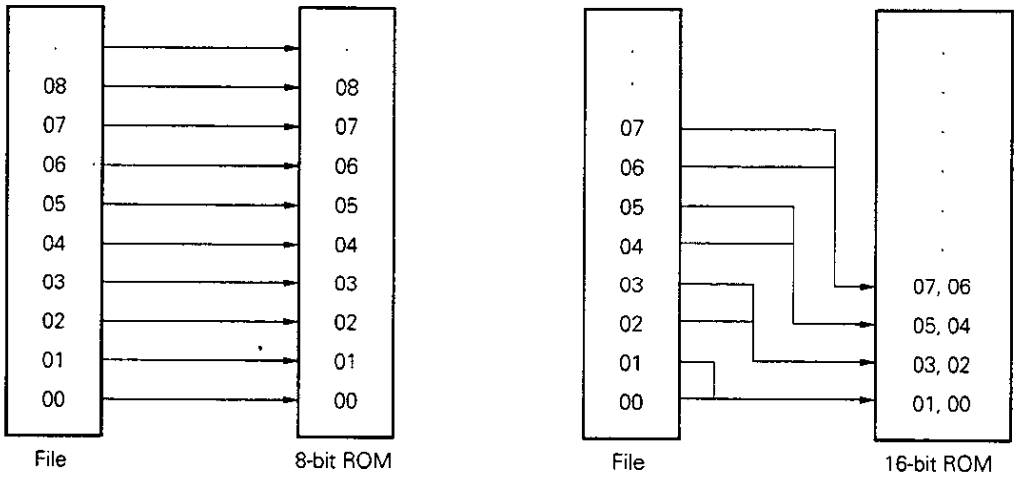


Figure 4-3. In the Case of "16-Bit 2-Partition" (BE, BO)

Data of 16 bits is divided into two by odd and even addresses, and then written to two 8-bit ROMs.

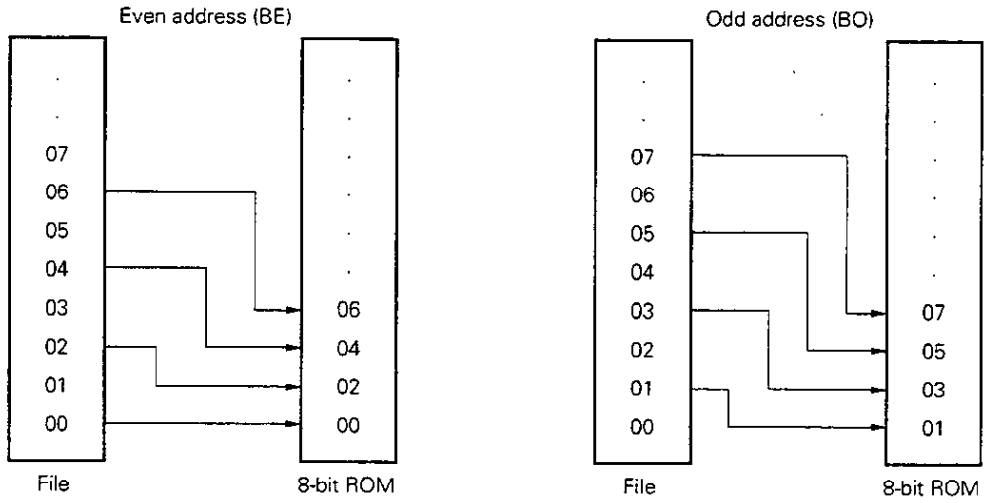


Figure 4-4. In the Case of "32-Bit 2-Partition" (WE, WO)

Data of 32 bits are divided into two by odd and even addresses, and then written to two 16-bit ROMs.

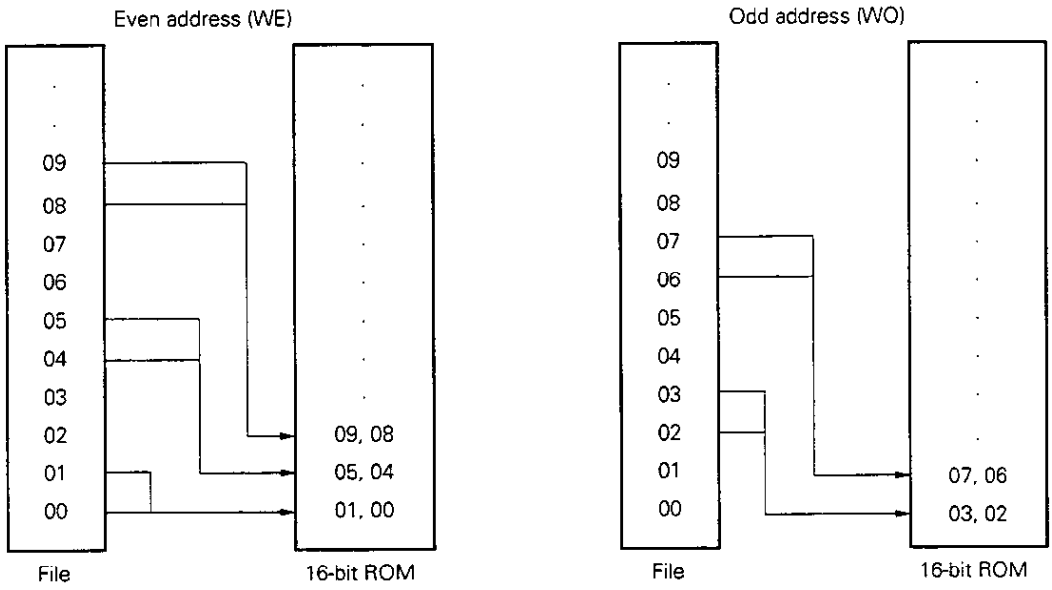
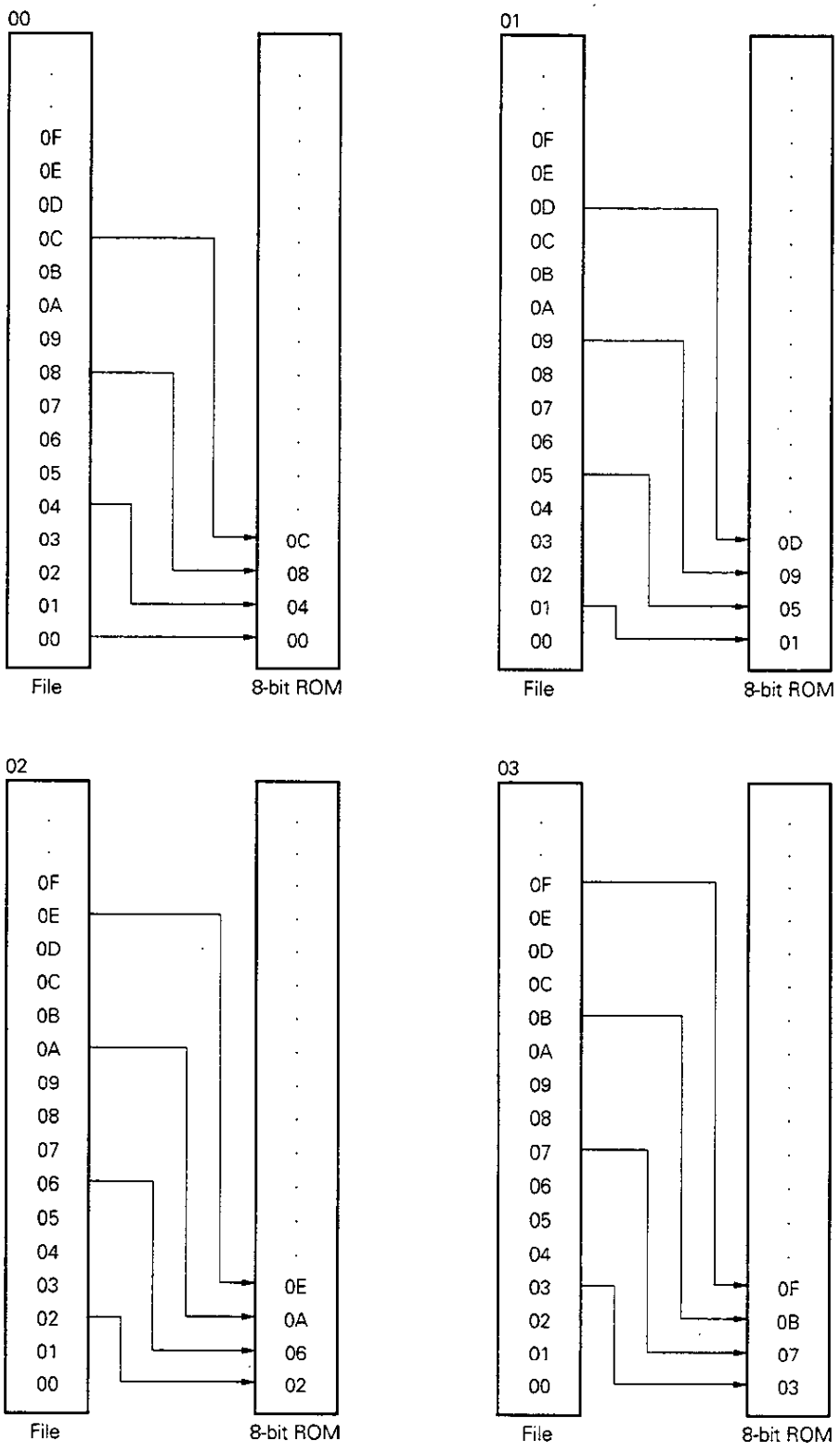


Figure 4-5. In the Case of "32-Bit 4-Partition" (00, 01, 02, 03)

Data of 32 bits are divided and written to four 8-bit ROMs as follows:



<4> HEX FORMAT

The following three file formats can be used:

File format = Intel_HEX	Specifies the Intel HEX format.
File format = Motorola_S	Specifies the Motorola S format.
File format = Tektronix_HEX	Specifies the TEK expanded HEX format.

The default value is "Intel_HEX".

<5> INTERFACE

There are two types of INTERFACE as shown below.

INTERFACE = SERIAL	Specifies the serial interface.
INTERFACE = PARALLEL	Specifies the parallel interface.

The default value is "SERIAL".

4.1.2 Message area

The message area displays the name of the configuration file and error messages. No data can be input by the user to this area.

4.1.3 Execution area

The execution area displays the messages indicating the process of an operation, messages requesting input, and the data sent from the PG-1500.

4.2 Commands in Control Mode

When the PG1500C is started up in the control mode with a configuration file specified, the configuration specified by the file is set. If no configuration file is specified, the default values are read, and the PG1500C waits for command input.

Figure 4-6. Start Screen in Control Mode

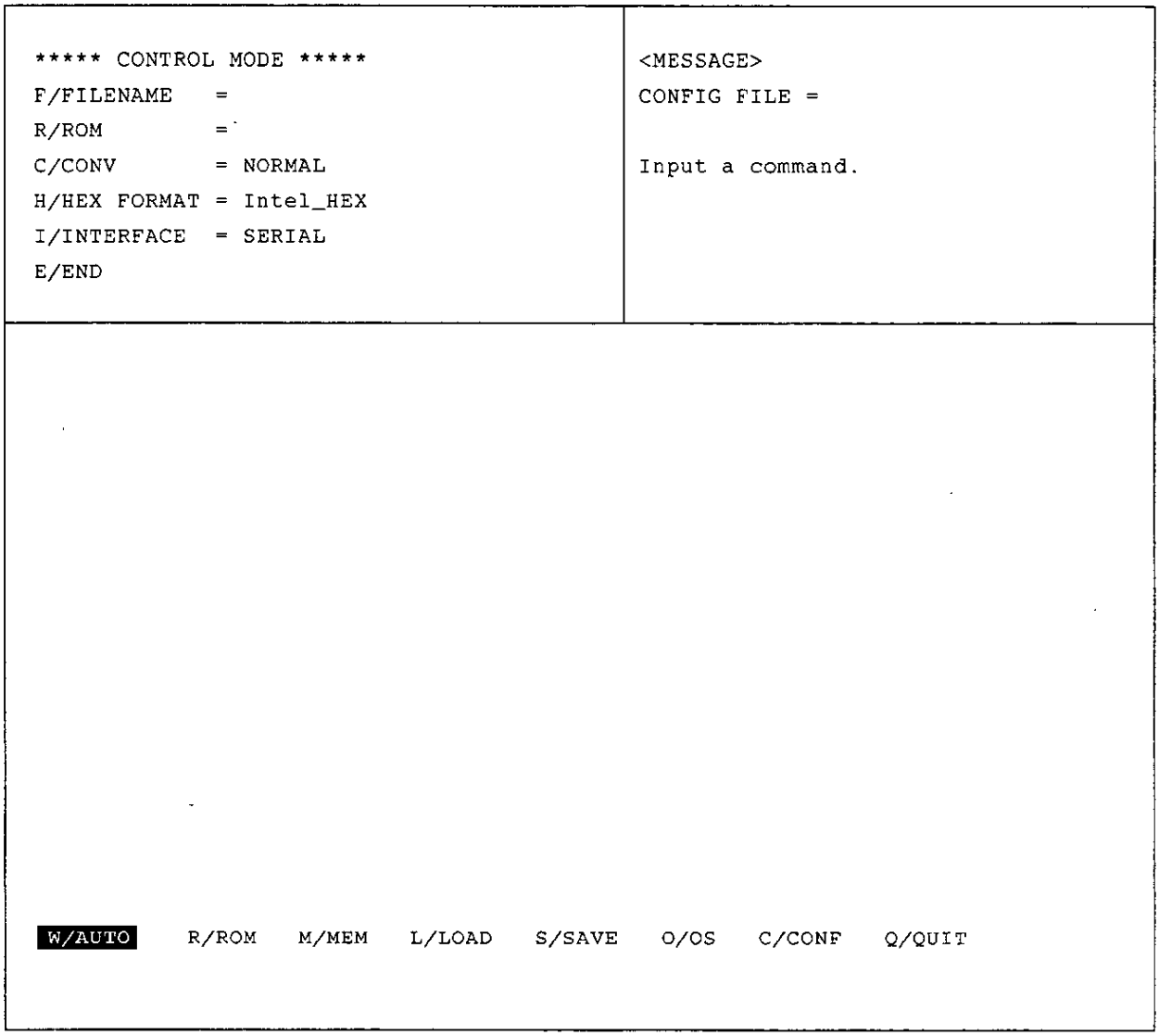


Table 4-1 shows the commands in the control mode.

Table 4-1. Commands Used in Control Mode

Command	Function
W/AUTO	Automatically performs a series of operations (loading file, selecting ROM, and writing to ROM) to write data to ROM in accordance with the specified configuration file data.
R/ROM	Performs operations related to ROM such as reading data from ROM (same as RR, RS, RV, RW, and RZ commands of PG-1500).
M/MEM	Changes, displays, and initializes memory data of PG-1500 (same as MC, MD, and MF commands of PG-1500).
L/LOAD	Transfers file data to PG-1500 (same as LI, LM, LT, PI, PM, and PT I commands of PG-1500).
S/SAVE	Saves memory data of PG-1500 to file (same as SI, SM, and ST commands of PG-1500).
O/OS	Starts OS SHELL (once returns control to OS).
C/CONF	Changes configuration setting (configuration file can also be saved on completion of setting).
Q/QUIT	Terminates PG1500C and returns control to OS (configuration file can be saved).

Each command is always displayed at the bottom of the screen during execution in the control mode. Each command can be executed by the following two methods:

<1> Use the → and ← keys to move the position of the command displayed in reverse video and then press the ↵ key.

<2> Input one alphabetic character at the leftmost position of the command.

4.2.1 Auto write (W) command

The W command automatically writes data to the ROM in accordance with the setting displayed in the configuration area.

When using the W command, set the configuration area by reading the configuration file on starting up the PG1500C, or by using the CONF (C) command.

Be sure to input the name of the file to be loaded.

If the ROM to be used is a silicon signature non-compatible product, the product name of the general-purpose ROM which corresponds to the ROM name, must be set. If the ROM name is not specified, μPD27256 is assumed.

When the W command is input, operations are performed automatically in the following sequence:

<1> Request for input of number of sets (screen A)
<2> ROM check (screen B)
<3> Loading of files (screen C)
<4> Writing to ROM (screen D)
<5> Displaying write end message (screen E)

When data are written to two or more ROMs (if the number of sets[Note] is 2 or more, or if the partition specification is other than "NORMAL"),

<6> Displaying message requesting replacement of ROM (screen F)

is performed, and operations <4> to <6> are repeated until all the data have been completely written. When all the operations have been completed, the PG1500C enters the command input wait status.

Note The number of sets specifies the number of ROM chip sets to be created by the same write method. Data are written to the even addresses and then odd addresses of the ROMs if the ROM is split into two partitions. If the ROM is split into four partitions, they are written to 00, 01, 02, and 03. The same contents are written by the number of sets all at once.

Example: To write two sets of 16-bit, two partitions

<1> Even addresses
<2> Even addresses
<3> Odd addresses
<4> Odd addresses

Figures 4-7 through 4-12 show the execution screens (screens A through F) of the W command.

Figure 4-7. Inputting Number of Sets (Screen A)

```
***** CONTROL MODE *****          <MESSAGE>
F/FILENAME    = TEST.HEX         CONFIG FILE = PG1500.PGC
R/ROM         = UPD27256
C/CONV        = NORMAL
H/HEX FORMAT = Intel_HEX
I/INTERFACE   = SERIAL
E/END

Number of sets = 1 ↵

W/AUTO   R/ROM   M/MEM   L/LOAD   S/SAVE   O/OS   C/CONF   Q/QUIT
```

As the default value of the number of sets, "1" is displayed as shown above. If only the ↵ key is input, "1" is set. To set the desired number of sets, input the desired number and then press the ↵ key.

Figure 4-8. ROM Check (Screen B)

```
***** CONTROL MODE *****
F/FILENAME    = TEST.HEX
R/ROM         = UPD27256
C/CONV        = NORMAL
H/HEX FORMAT  = Intel_HEX
I/INTERFACE   = SERIAL
E/END
```

```
<MESSAGE>
CONFIG FILE = PG1500.PGC
```

```
Number of sets = 1
ROM Check: UPD27256
```

```
W/AUTO   R/ROM   M/MEM   L/LOAD   S/SAVE   O/OS   C/CONF   Q/QUIT
```

ROM Check is to select a ROM automatically.

First, a silicon signature is read, and the read data is compared against the ROM name displayed in the configuration area. If they match, or if no ROM name is displayed in the configuration area, the comparison is terminated. If the two ROM names do not match, an error message is displayed.

If the ROM name displayed in the configuration area is a general-purpose PROM or if a device other than a general-purpose PROM is used, the silicon signature cannot be read. In the former case, the ROM name displayed in the configuration area is selected as is. If a device other than a general-purpose PROM is displayed or if no ROM name is displayed in the configuration area, "D27256" is automatically selected.

After ROM Check has been completed, file loading is started.

Figure 4-9. File Loading (Screen C)

```
***** CONTROL MODE *****
F/FILENAME    = TEST.HEX
R/ROM         = UPD27256
C/CONV        = NORMAL
H/HEX FORMAT  = Intel_HEX
I/INTERFACE   = SERIAL
E/END
```

```
<MESSAGE>
CONFIG FILE = PG1500.PGC
```

```
Number of sets = 1
ROM Check: UPD27256
File Loading
```

```
W/AUTO    R/ROM    M/MEM    L/LOAD    S/SAVE    O/OS    C/CONF    Q/QUIT
```

While a file is loaded, the message "File Loading" blinks. Blinking stops when the file has been completely loaded.

If an error occurs during loading, an error message is displayed in the message area (refer to "**CHAPTER 7 ERROR MESSAGES**"), and the PG1500C enters the command input wait status.

When the file is loaded, the buffer of the PG-1500 (processing of the MF command of the PG-1500) is also initialized.

Figure 4-10. Writing to ROM (Screen D)

```
***** CONTROL MODE *****          <MESSAGE>
F/FILENAME    = TEST.HEX         CONFIG FILE = PG1500.PGC
R/ROM         = UPD27256
C/CONV        = NORMAL
H/HEX FORMAT  = Intel_HEX
I/INTERFACE   = SERIAL
E/END

Number of sets = 1
ROM Check: UPD27256
File Loading
Writing (NN)

 W/AUTO    R/ROM    M/MEM    L/LOAD    S/SAVE    O/OS    C/CONF    Q/QUIT
```

Data is written to the ROM.

If the CONV is "NORMAL", only the message "Writing (NN)" is displayed. If it is "16-bit 2-partition", the message "Writing (BE (even address))" is displayed. In other words, the address mapping method is displayed enclosed in ( ) (refer to "CONV" in "**4.1.1 Configuration area**").

While the data is written to the ROM, the message "Writing to ROM" blinks. The display returns to normal when writing has been completed.

Figure 4-11. Write End Message (Screen E)

```
***** CONTROL MODE *****          <MESSAGE>
F/FILENAME    = TEST.HEX         CONFIG FILE = PG1500.PGC
R/ROM         = UPD27256
C/CONV        = NORMAL
H/HEX FORMAT  = Intel_HEX
I/INTERFACE   = SERIAL
E/END

Number of sets = 1
ROM Check: UPD27256
File Loading
Writing (NN)

ROM erase OK!
Now, data writing!
Data complete
Check sum: 78D6

Write completed

 W/AUTO    R/ROM    M/MEM    L/LOAD    S/SAVE    O/OS    C/CONF    Q/QUIT
```

The above message is displayed when data has been completely written to one ROM.

Figure 4-12. ROM Replacement Request Message (Screen F)

```
***** CONTROL MODE *****
F/FILENAME    = TEST.HEX
R/ROM         = UPD27256
C/CONV        = 16bit/2
H/HEX FORMAT  = Intel_HEX
I/INTERFACE   = SERIAL
E/END
```

```
<MESSAGE>
CONFIG FILE = PG1500.PGC
```

```
Number of sets = 1
ROM Check: UPD27256
File Loading
Writing (BE (even address))


ROM erase OK!
Now, data writing!
Data complete
Check sum: C63B


Write completed
 Next is BO (odd address).
 Change ROM, and push any key.

  W/AUTO    R/ROM    M/MEM    L/LOAD    S/SAVE    O/OS    C/CONF    Q/QUIT
```

If the number of sets is 2 or more, or if the CONV is other than "NORMAL", a message prompting you to change the ROM is displayed.

4.2.2 ROM (R) command

The R command corresponds to the commands "RR", "RS", "RV", "RW", and "RZ" in the terminal mode (for details on the execution contents, refer to "**CHAPTER 6 TERMINAL MODE**" and the "**PG-1500 User's Manual**").

Select the RR to RZ commands by the following procedure while the PG1500C is in the command input wait status (refer to **Figure 4-6**).

(1) Move the position of display in reverse video to **R/ROM** by using the [→] or [←] key followed by input of the [↵] key. Or, input the character at the leftmost position of the command, "R". Then the "**R Command Selection Screen**" shown in **Figure 4-13** will be displayed.

(2) Display **R/DATA READ** to **Z/ZERO CHECK** in reverse video by using the [↑] or [↓] key followed by input of the [↵] key. Or, input the character at the leftmost position of the command, "R" to "Z". Then the execution screen of the specified command will be displayed (refer to **Figures 4-14** through **4-18**).

Remark When inputting one alphabetic character at the leftmost position of the command, (1) and (2) above can be performed one after another without confirming the R command selection screen. For example, to execute the RR command, input "RR".

Table 4-2 lists the parameters and default values of the R commands.

★ **Table 4-2. Parameters and Default Values of R Commands**

Command	Parameter	Default Value
RR	ROM start address	00000
	ROM end address	End address of ROM selected by RS
	PG buffer start address	00000
	CONV	Value displayed in configuration area
RS	Select any of {R, A, C} R: Reads silicon signature A: Reads silicon signature during PROM operation C: Selects ROM according to code number	None
RV	ROM start address	00000
	ROM end address	End address of ROM selected by RS
	PG buffer start address	00000
	CONV	Value displayed in configuration area
RW	ROM start address	00000
	ROM end address	End address of ROM selected by RS
	PG buffer start address	00000
	CONV	Value displayed in configuration area
RZ	None	None

Remark Input an address as a 5-digit hexadecimal number. If the address is 4 digits or less, input 0 as the higher digit(s). An address of 6 digits or longer must not be input.

Figure 4-13. R Command Selection Screen

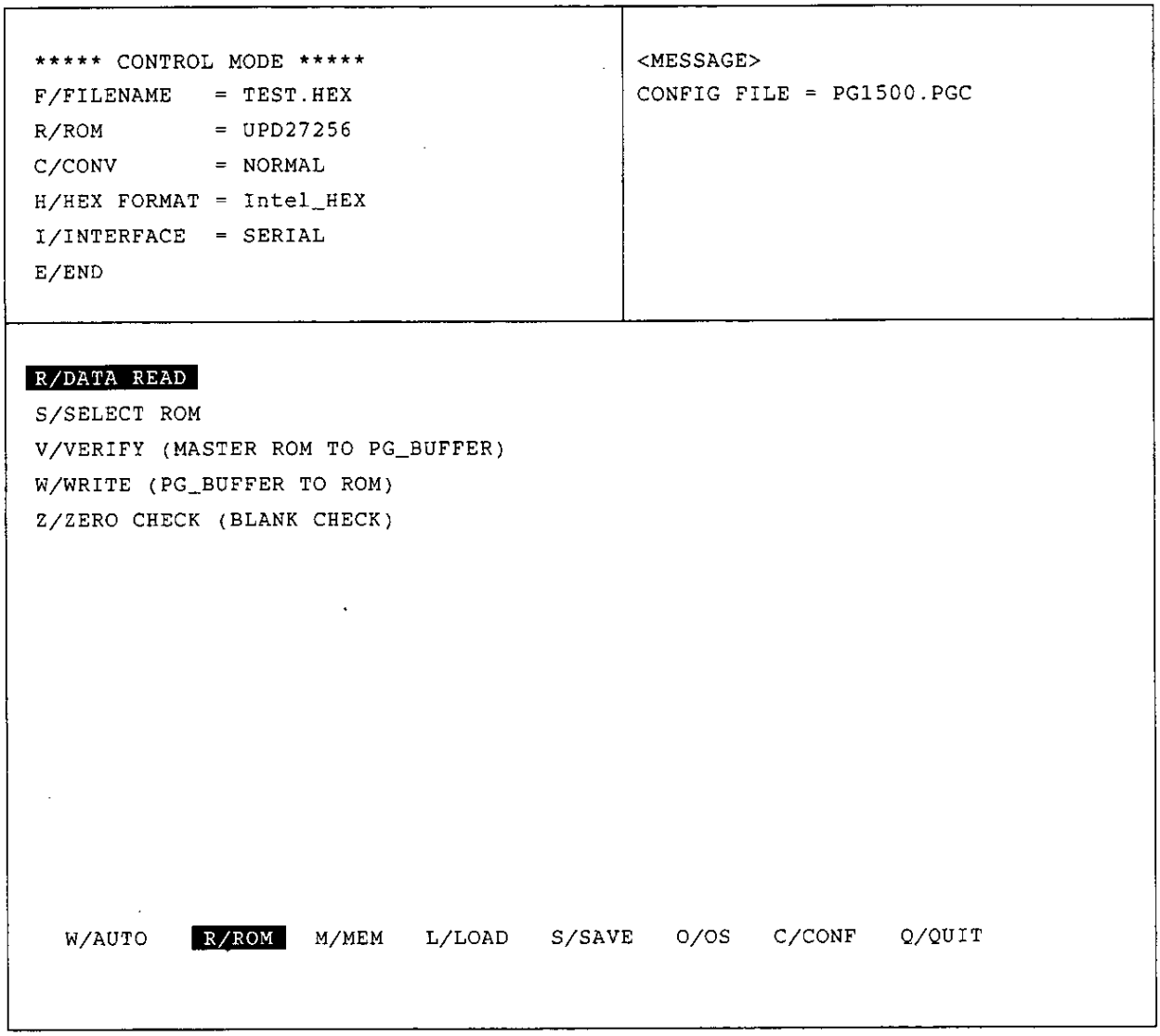


Figure 4-14. RR Command Execution Screen

```
***** CONTROL MODE *****
F/FILENAME    = TEST.HEX
R/ROM         = UPD27256
C/CONV        = NORMAL
H/HEX FORMAT  = Intel_HEX
I/INTERFACE   = SERIAL
E/END

<MESSAGE>
CONFIG FILE = PG1500.PGC

RR/DATA READ
 ROM START ADDRESS        = 00000
 ROM END ADDRESS          = 07FFF
 PG_BUFFER START ADDRESS  = 00000

 CONV                     = NN BE BO WE WO 00 01 02 03

 START

 W/AUTO   R/ROM   M/MEM   L/LOAD   S/SAVE   O/OS   C/CONF   Q/QUIT
```

The default value of each parameter is displayed first (refer to "**Table 4-2 Parameters and Default Values of R Commands**").

To input a value of a parameter, first select the parameter by using the ↑ and ↓ keys. Then input the ↵ key. The value of the specified parameter can be changed.

If only the ↵ key is input, the currently set value of the parameter is left unchanged. If a new value is input or if the position of display in reverse video is moved by the → or ← key followed by input of the ↵ key, the specified value is set (for the details on the CONV, refer to Figures 4-2 through 4-5).

When "START" is selected, execution of the command is started and the message "Now, data reading!" blinks.

When the execution has been completed, the message "Data complete" and the checksum are displayed, and the PG1500C enters the command input wait status.

Figure 4-15. RS Command Execution Screen

```
***** CONTROL MODE *****          <MESSAGE>
F/FILENAME    = TEST.HEX         CONFIG FILE = PG1500.PGC
R/ROM         = UPD27256
C/CONV        = NORMAL
H/HEX FORMAT  = Intel_HEX
I/INTERFACE   = SERIAL
E/END

RS/SELECT ROM
 R/SIGNATURE READ
 A/SIGNATURE AUTO READ
 C/CODE SELECT

  W/AUTO    R/ROM    M/MEM    L/LOAD    S/SAVE    O/OS    C/CONF    Q/QUIT
```

Move the line displayed in reverse video by using the ↑ or ↓ key and then input the ↵ key, or input one alphabetic character displayed at the leftmost position. Then execution will be started.

Cautions 1. The ROM selected is not verified against the ROM name displayed in the configuration area.

2. "R/SIGNATURE READ" and "A/SIGNATURE AUTO READ" can be executed only with silicon signature-compatible products.
For silicon signature non-compatible products, select "C/CODE SELECT".

Figure 4-16. RV Command Execution Screen

```
***** CONTROL MODE *****          <MESSAGE>
F/FILENAME    = TEST.HEX         CONFIG FILE = PG1500.PGC
R/ROM         = UPD27256
C/CONV        = NORMAL
H/HEX FORMAT  = Intel_HEX
I/INTERFACE   = SERIAL
E/END

RV/VERIFY (MASTER ROM TO PG_BUFFER)
 ROM START ADDRESS        = 00000
 ROM END ADDRESS          = 07FFF
 PG_BUFFER START ADDRESS  = 00000

 CONV                     = NN BE BO WE WO 00 01 02 03

 START

  W/AUTO   R/ROM   M/MEM   L/LOAD   S/SAVE   O/OS   C/CONF   Q/QUIT
```

The default value of each parameter is displayed first (refer to "**Table 4-2 Parameters and Default Values of R Commands**").

To input a value of a parameter, first select the parameter by using the ↑ and ↓ keys followed by the input of the ↵ key. The value of the specified parameter can be changed.

If only the ↵ key is input, the currently set value of the parameter is left unchanged. If a new value is input or if the position of display in reverse video is moved by the → or ← key followed by input of the ↵ key, the specified value is set.

When "START" is selected, execution of the command is started and the message "Now, data reading!" blinks.

When the execution has been completed, the message "Data complete" and the checksum are displayed, and the PG1500C enters the command input wait status.

Figure 4-17. RW Command Execution Screen

```
***** CONTROL MODE *****          <MESSAGE>
F/FILENAME    = TEST.HEX         CONFIG FILE = PG1500.PGC
R/ROM         = UPD27256
C/CONV        = NORMAL
H/HEX FORMAT  = Intel_HEX
I/INTERFACE   = SERIAL
E/END

RW/WRITE (PG_BUFFER TO ROM)
 ROM START ADDRESS        = 00000
 ROM END ADDRESS          = 07FFF
 PG_BUFFER START ADDRESS  = 00000

 CONV                     = NN BE BO WE WO 00 01 02 03

 START

  W/AUTO   R/ROM   M/MEM   L/LOAD   S/SAVE   O/OS   C/CONF   Q/QUIT
```

The default value of each parameter is displayed first (refer to "**Table 4-2 Parameters and Default Values of R Commands**").

To input a value of a parameter, first select the parameter by using the ↑ and ↓ keys. Then input the ↵ key. The value of the specified parameter can be changed.

If only the ↵ key is input, the currently set value of the parameter is left unchanged. If a new value is input or if the position of display in reverse video is moved by the → or ← key followed by input of the ↵ key, the specified value is set.

When "START" is selected, execution of the command is started and the message "Now, data writing!" blinks.

When the execution has been completed, the message "Data complete" and the checksum are displayed, and the PG1500C enters the command input wait status.

Figure 4-18. RZ Command Execution Screen

```
***** CONTROL MODE *****          <MESSAGE>
F/FILENAME    = TEST.HEX         CONFIG FILE = PG1500.PGC
R/ROM         = UPD27256
C/CONV        = NORMAL
H/HEX FORMAT  = Intel_HEX
I/INTERFACE   = SERIAL
E/END

RZ/ZERO CHECK (BLANK CHECK)

   W/AUTO    R/ROM    M/MEM    L/LOAD    S/SAVE    O/OS    C/CONF    Q/QUIT
```

Execution of the RZ command is started immediately because it is not necessary to specify parameters for this command.

When the execution has been completed, the message "ROM erase OK!" is displayed and the PG1500C enters the command input wait status.

4.2.3 Memory (M) command

The M command corresponds to the "MC", "MD", and "MF" commands in the terminal mode (for the details on execution contents, refer to "**CHAPTER 6 TERMINAL MODE**" and the "**PG-1500 User's Manual**").

Select the MC to MF commands by the following procedure from the command input wait status (**Figure 4-6**).

(1) Move the position of display in reverse video to **M/MEM** by using the → or ← key followed by input of the ↵ key. Or, input the character at the leftmost position of the command, "M". The "**M Command Selection Screen**" shown in **Figure 4-19** will be displayed.

(2) Move the position of display in reverse video to **C/CHANGE PG_BUFFER DATA** to **F/INITIALIZE PG_BUFFER** by using the ↑ or ↓ key followed by input of the ↵ key. Or, input the character at the leftmost position of the command, "C" to "F". The execution screen of the specified command will be displayed (refer to **Figures 4-20** through **4-22**).

Remark When inputting one alphabetic character at the leftmost position of the command, (1) and (2) above can be performed one after another without confirming the M command selection screen. For example, to execute the MC command, input "MC".

Table 4-3 lists the parameters and default values of the M commands.

Table 4-3. Parameters and Default Values of M Commands ★

Command	Parameter	Default Value
MC	PG buffer start address	00000
MD	PG buffer start address	00000
	PG buffer end address	7FFFF
MF	PG buffer start address	00000
	PG buffer end address	7FFFF
	Initialization data	FF[Note]

Note If the RS command has been executed before executing the MF command, the initialization data of the selected ROM will be set. If the RS command has not been executed, and if a ROM name is set in the configuration area, the initialization data of that ROM will be set (the setting made by the RS command takes precedence over the setting in the configuration area).

Remark Input an address as a 5-digit hexadecimal number. If the address is 4 digits or less, input 0 as the higher digit(s). An address of 6 digits or longer must not be input.

Figure 4-19. M Command Selection Screen

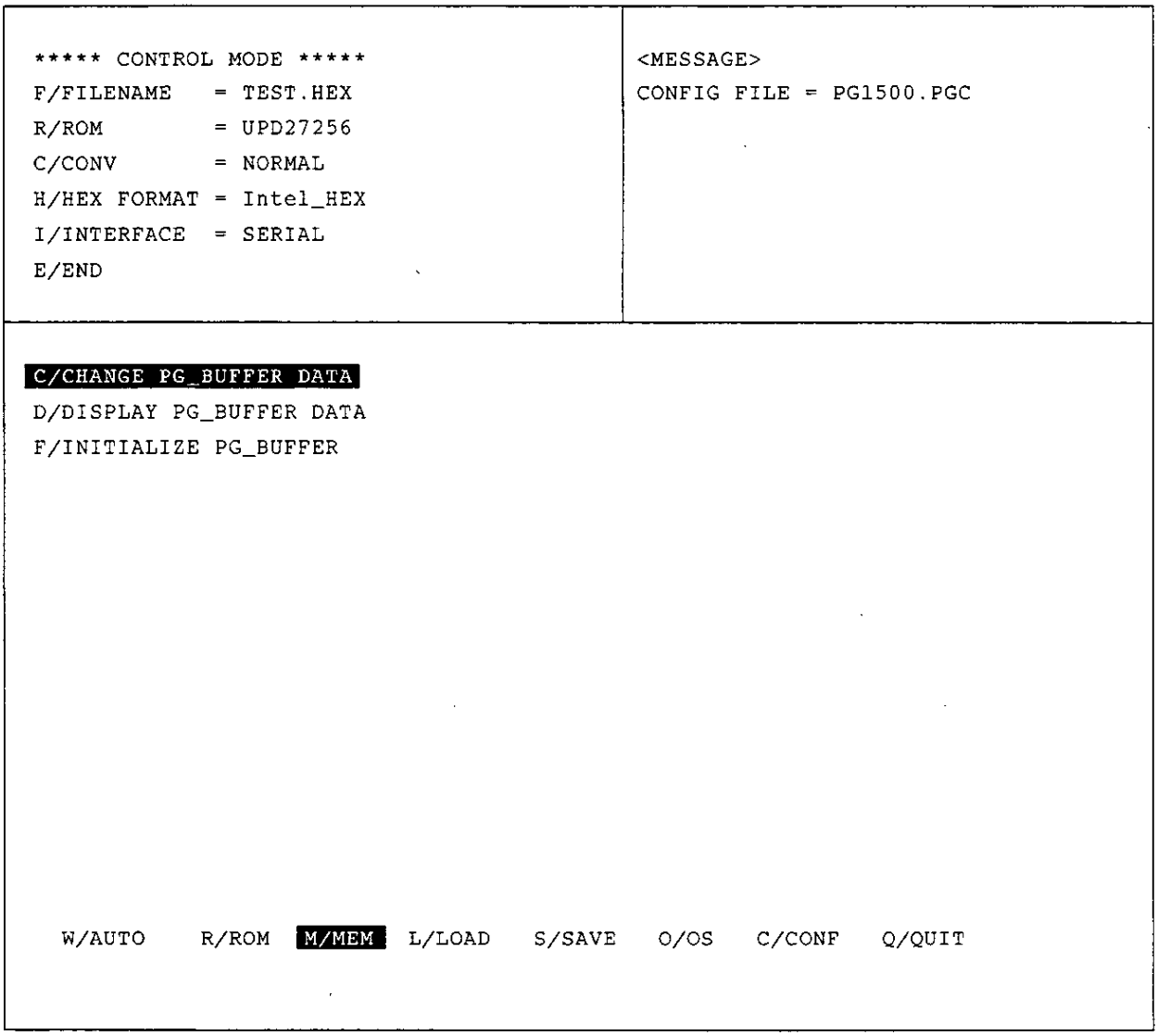


Figure 4-20. MC Command Execution Screen

```
***** CONTROL MODE *****          <MESSAGE>
F/FILENAME    = TEST.HEX         CONFIG FILE = PG1500.PGC
R/ROM         = UPD27256
C/CONV        = NORMAL
H/HEX FORMAT  = Intel_HEX
I/INTERFACE   = SERIAL
E/END

MC/CHANGE PG_BUFFER DATA
 PG_BUFFER START ADDRESS = 00000

 START

  W/AUTO    R/ROM   M/MEM   L/LOAD   S/SAVE   O/OS   C/CONF   Q/QUIT
```

The default value of the parameter, "00000", is first displayed (refer to "**Table 4-3 Parameters and Default Values of M Commands**").

To change the start address of the PG buffer, first display "PG BUFFER START ADDRESS" in reverse video by using the [↑] key. Next input the [↵] key. The value of the parameter can be changed. If only the [↵] key is input at this time, the currently set value of the parameter is left unchanged. If a new value is input followed by the input of the [↵] key, the parameter is changed to the specified value.

When "START" is selected, execution of the command is started.

If an error occurs, an error message is displayed in the message area.

If a 2-digit hexadecimal number is input, the contents of the address currently displayed are changed, and the next address is then displayed.

To terminate the MC command, input the [↵] key.

After the MC command has been terminated, the PG1500C enters the command input wait status.

Figure 4-21. MD Command Execution Screen

```
***** CONTROL MODE *****
F/FILENAME    = TEST.HEX
R/ROM         = UPD27256
C/CONV        = NORMAL
H/HEX FORMAT  = Intel_HEX
I/INTERFACE   = SERIAL
E/END

<MESSAGE>
CONFIG FILE = PG1500.PGC

MD/DISPLAY PG_BUFFER DATA
 PG_BUFFER START ADDRESS = 00000
 PG_BUFFER END ADDRESS   = 7FFFF

START

 W/AUTO    R/ROM    M/MEM    L/LOAD    S/SAVE    O/OS    C/CONF    Q/QUIT
```

The default value of the parameter is first displayed (refer to "**Table 4-3 Parameters and Default Values of M Commands**").

To change the value of a parameter, first select the parameter by using the ↑ and ↓ keys followed by the input of the ↵ key. If only the ↵ key is input at this time, the currently set value of the parameter is left unchanged. If a new value is input followed by the input of the ↵ key, the parameter is changed to the specified value.

When "START" is selected, execution of the command is started.

If an error occurs, an error message is displayed in the message area.

If CTRL+C is input during execution, control is returned to the OS.

To abort the MD command, input the ESC key.

When execution has been completed, the PG1500C enters the command input wait status.

Figure 4-22. MF Command Execution Screen

```
***** CONTROL MODE *****          <MESSAGE>
F/FILENAME    = TEST.HEX         CONFIG FILE = PG1500.PGC
R/ROM         = UPD27256
C/CONV        = NORMAL
H/HEX FORMAT  = Intel_HEX
I/INTERFACE   = SERIAL
E/END

MF/INITIALIZE PG_BUFFER
 PG_BUFFER START ADDRESS = 00000
 PG_BUFFER END ADDRESS   = 7FFFF
 INITIAL DATA            = FF

 START

  W/AUTO    R/ROM   M/MEM   L/LOAD   S/SAVE   O/OS   C/CONF   Q/QUIT
```

The default value of the parameter is first displayed (refer to "**Table 4-3 Parameters and Default Values of M Commands**").

To change the value of a parameter, first select the parameter by using the ↑ and ↓ keys followed by the input of the ↵ key. If only the ↵ key is input at this time, the currently set value of the parameter is left unchanged. If a new value is input followed by the input of the ↵ key, the parameter is changed to the specified value.

As the "INITIAL DATA", set the following value:

μPD75P54, 75P56, 75P64, 75P66 : initialization data "00"
All devices other than above : initialization data "FF"

When "START" is selected, execution is started.

When execution has been completed, the PG1500C enters the command input wait status.

4.2.4 Load (L) command

The L command corresponds to the "LI", "LM" and "LT" commands in the terminal mode if the INTERFACE is serial, and to "PI", "PM", and "PT" if the INTERFACE is parallel (for the details on execution contents, refer to "**CHAPTER 6 TERMINAL MODE**").

When the L command is input while the PG1500C is in the command input wait status (refer to **Figure 4-6**), the PG1500C enters the parameter input wait status (refer to **Figure 4-23**). The L command can be input in the following two ways:

1. Move the position of display in reverse video in the command display area (execution area) by using the → or ← key, to **L/LOAD** , and then press the ↵ key.

2. Input "L".

Figure 4-23. L Command Parameter Input Screen

```
***** CONTROL MODE *****          <MESSAGE>
F/FILENAME    = TEST.HEX         CONFIG FILE = PG1500.PGC
R/ROM         = UPD27256
C/CONV        = NORMAL
H/HEX FORMAT  = Intel_HEX
I/INTERFACE   = SERIAL
E/END

FILENAME = B:¥ABCD¥EFG¥TEST.HEX

HEX FORMAT = Intel_HEX  Motorola_S  Tektronix_HEX

INTERFACE  = SERIAL     PARALLEL

START

  W/AUTO    R/ROM   M/MEM   L/LOAD   S/SAVE   O/OS   C/CONF   Q/QUIT
```

The values of the parameters displayed in the configuration area are first displayed in the execution area.

All the input names, such as the drive name and directory name, are displayed as the name of the file to be loaded.

To change the value of a parameter, first select the parameter by using the ↑ or ↓ key, and then input the ↵ key.

If only the ↵ key is input at this time, the current value of the parameter is left unchanged. If a new file name is input, or if the setting of the "HEX FORMAT" and "INTERFACE" is changed by using the → or ← key followed by the input of the ↵ key, the new file name and the selected file format and interface type are set.

If no file name is input, be sure to input a file name before executing this command.

When "START" is selected, execution of the command is started.

When the execution has been completed, the message "Load complete" is displayed, and the PG1500C enters the command input wait status. ★

4.2.5 Save (S) command

The S command corresponds to the "SI", "SM", and "ST" commands in the terminal mode (for the details on execution contents, refer to "**CHAPTER 6 TERMINAL MODE** "and the "**PG-1500 User's Manual**").

When the S command is input with the PG1500C in the command input wait status (refer to **Figure 4-6**), the PG1500C enters the parameter input wait status (refer to **Figure 4-24**). The S command can be input in the following two ways:

1. Move the position of display in reverse video in the command display area (execution area) by using the → or ← key, to **S/SAVE**, and then press the ↵ key.

2. Input "S".

Figure 4-24. S Command Parameter Input Screen

```
***** CONTROL MODE *****
F/FILENAME    = TEST.HEX
R/ROM         = UPD27256
C/CONV        = NORMAL
H/HEX FORMAT  = Intel_HEX
I/INTERFACE   = SERIAL
E/END

<MESSAGE>
CONFIG FILE = PG1500.PGC

FILENAME = B:¥ABCD¥EFG¥TEST.HEX

HEX FORMAT               = Intel_HEX  Motorola_S  Tektronix_HEX
PG_BUFFER START ADDRESS = 00000
PG_BUFFER END ADDRESS    = 7FFFF

START

  W/AUTO    R/ROM    M/MEM    L/LOAD    S/SAVE    O/OS    C/CONF    Q/QUIT
```

The values of the parameters displayed in the configuration area are first displayed in the execution area. "00000" is displayed as the PG_BUFFER START ADDRESS and "7FFFF" as the PG_BUFFER END ADDRESS. ★

To change the value of a parameter, first select the parameter by using the ↑ or ↓ key, and then input the ↵ key.

If only the ↵ key is input at this time, the current value of the parameter is left unchanged. If a new value or alphabetic character is specified followed by the input of the ↵ key, the value of the parameter is changed to the specified value.

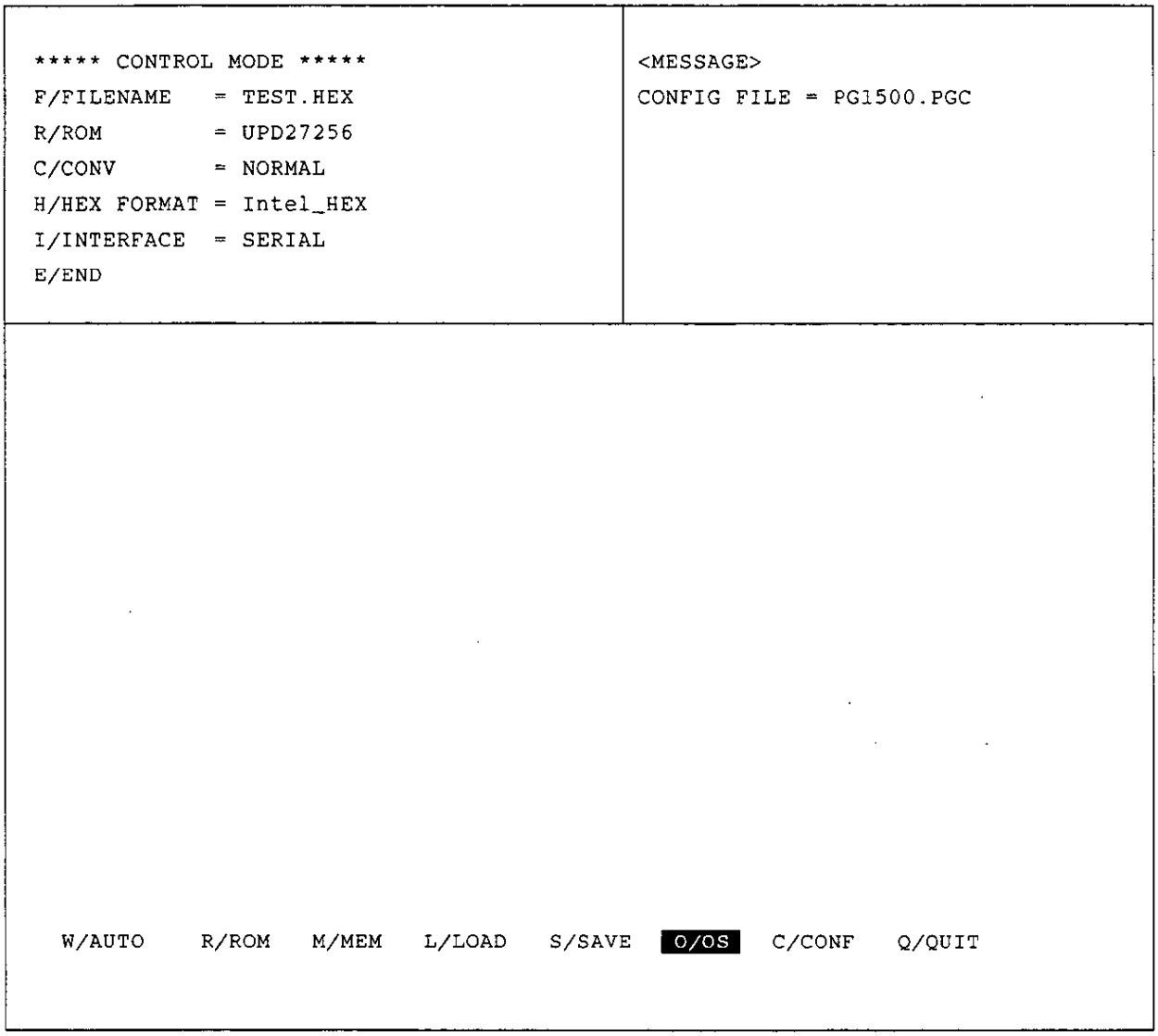
When "START" is selected, execution of the command is started.

If the name of a file to be saved is not specified at this time, the data sent from the PG-1500 are displayed in the execution area.

When the execution has been completed, the message "Save complete" is displayed, and the PG1500C enters the command input wait status. ★

4.2.6 OS (O) command

Figure 4-25. O Command Execution Screen



When the O command is input with the PG1500C in the command input wait status (refer to **Figure 4-6**), control is returned to the OS.

The O command can be input in the following two ways:

1. Move the position of display in reverse video in the command display area (execution area) by using the → or ← key to **O/OS** and then input the ↵ key.

2. Input "O".

To return to the control mode again, input EXIT ↵.

4.2.7 CONF (C) command

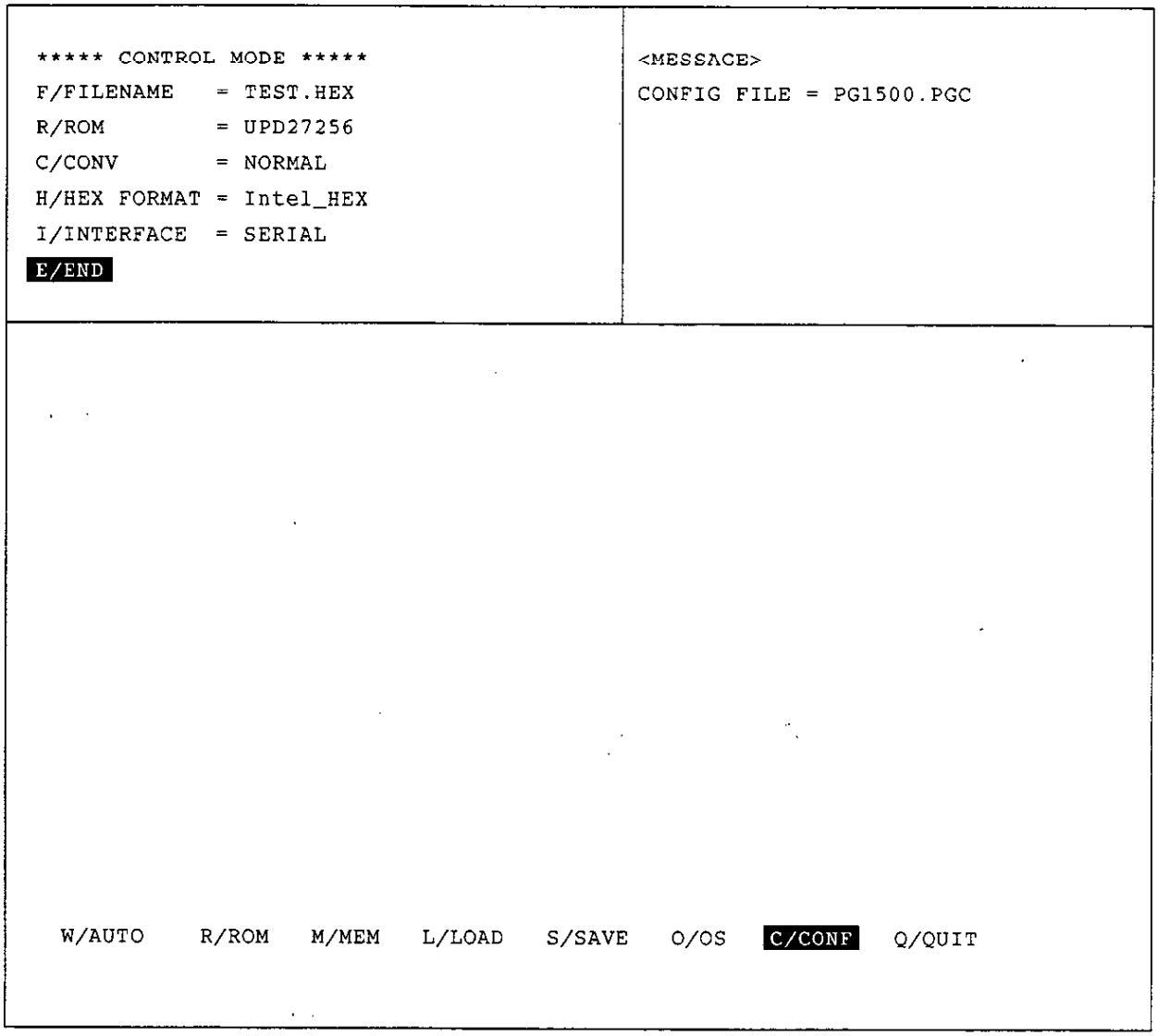
When the C command is input with the PG1500C in the command input wait status (refer to **Figure 4-6**), the screen shown in Figure 4-26 is displayed.

The C command can be input in the following two ways:

1. Move the position of display in reverse video in the command display area (execution area) by using the [→] or [←] key to **C/CONF** and then press the [↵] key.

2. Input "C".

Figure 4-26. C Command Execution Screen



When the position of display in reverse video in the configuration area is moved by using the ↑ or ↓ key and then the ↵ key is input, or when one alphabetic character at the leftmost position of a parameter to be selected is input, the value of the selected parameter can be changed.

If "F/FILENAME" or "R/ROM" is selected, a file name or ROM name can be input from the keyboard (for the input format, refer to "**3.3 Creating Configuration File**").

If "C/CONV", "H/HEX FORMAT", or "I/INTERFACE" is specified, the menu of the specified parameter is displayed. Move the position of display in reverse video by using the → or ← key and input the ↵ key.

If the setting has been changed, the configuration file can be saved when the CONF command has been terminated.

As an example, Figure 4-27 shows an execution screen when "C/CONV" is selected.

Figure 4-27. Execution Screen When CONV Is Changed

```
***** CONTROL MODE *****          <MESSAGE>                HELP
F/FILENAME    = TEST.HEX         CONFIG FILE = PG1500.PGC
R/ROM         = UPD27256
C/CONV        =
H/HEX FORMAT  = Intel_HEX
I/INTERFACE   = SERIAL
E/END

 NORMAL  16bit/2  32bit/2  32bit/4

   W/AUTO    R/ROM    M/MEM    L/LOAD    S/SAVE    O/OS    C/CONF    Q/QUIT
```

Move the position of display in reverse video in the execution area by using the → or ← key to select the desired parameter, and press the ↵ key.

When "H/HEX FORMAT" is selected in the same manner as when "C/CONV" is selected, the following message is displayed:

Intel_HEX Motorola_S Tektronix_HEX

Likewise, when "I/INTERFACE" is selected, the following message is displayed:

SERIAL PARALLEL

If the HELP key is pressed while the CONV is selected, the figures shown in "**<3> CONV** in **4.1.1 Configuration area**" are displayed in the execution area.

The address mapping method of the CONV displayed in reverse video is displayed at this time.

If the HELP key is pressed again, the screen returns to that shown in Figure 4-27.

Figure 4-28 shows the screen to terminate the C command.

Figure 4-28. C Command Termination Screen

```
***** CONTROL MODE *****          <MESSAGE>          INSERT
F/FILENAME    = TEST.HEX         CONFIG FILE = PG1500.PGC
R/ROM         = UPD27256
C/CONV        = NORMAL
H/HEX FORMAT  = Intel_HEX
I/INTERFACE   = SERIAL
E/END

Save configuration file?

S/SAVE AND END
E/END

Input configuration file name.
FILENAME = A:¥XYZ¥PG1500.PGC

  W/AUTO    R/ROM    M/MEM    L/LOAD    S/SAVE    O/OS    C/CONF    Q/QUIT
```

Press the ↵ key while **E/END** is displayed in reverse video. If any configuration parameter has been changed, a message inquiring you whether the change is to be also saved is displayed in the execution area. If no parameter has been changed, the PG1500C returns to the command input wait status (refer to **Figure 4-6**).

To save the setting, a message prompting you to input a configuration file name is displayed. If only the ↵ key is input at this time, the file currently displayed is overwritten.

The message requesting input of the file name is displayed in the execution area. If the ↵ key is input, the configuration file is saved.

When the configuration file has been saved correctly, the name of the saved file is displayed at the position of the configuration file in the message area.

When the CONF command has been terminated, the PG1500C enters the command input wait status.

4.2.8 QUIT (Q) command

When the Q command is input with the PG1500C in the command input wait status (refer to **Figure 4-6**), the screen shown in Figure 4-29 is displayed. The Q command can be input in the following two ways:

1. Move the position of display in reverse video in the command display area (execution area) by using the → or ← key to **Q/QUIT**, and press the ↵ key.

2. Input "Q".

4.3 If Error Occurs in Control Mode

If an error occurs in the control mode, an error message is displayed (refer to "**CHAPTER 7 ERROR MESSAGES**").

The error message consists of an error number and a message and is displayed in the message area. In addition, remedies are also displayed in the execution area.

The error message can be erased by inputting a command or a key in accordance with the messages displayed in the execution area.

Figure 4-29. Q Command Execution Screen

```
***** CONTROL MODE *****          <MESSAGE>          INSERT
F/FILENAME    = TEST.HEX         CONFIG FILE = PG1500.PGC
R/ROM         = UPD27256
C/CONV        = NORMAL
H/HEX FORMAT  = Intel_HEX
I/INTERFACE   = SERIAL
E/END

Save configuration file?

 S/SAVE AND END
 E/END

 Input configuration file name.
  FILENAME = A: ¥XYZ¥PG1500.PGC

   W/AUTO     R/ROM    M/MEM    L/LOAD    S/SAVE    O/OS    C/CONF   Q/QUIT
```

When the Q command is input, the PG1500C is terminated, and control is returned to the OS. If the contents of the configuration file have been changed but not been saved, however, the above screen is displayed.

If "S/SAVE AND END" is selected, a message requesting you to input a configuration file name is displayed.

If "E/END" is selected, the PG1500C is terminated without saving the contents of the configuration file.

[MEMO]

CHAPTER 5 AUTO MODE

The auto mode is set only when the option that sets the mode has been input and a configuration file has been specified on starting up the PG1500C.

However, if some parameters of the configuration file are not set or if the configuration file contains an error, the screen of the auto mode is not displayed, but a message requesting you to input a configuration file name is displayed.

In the auto mode, the configuration file specified by filename is read and the setting is made in accordance with the specified configuration. Subsequently, ROM check, file loading, and writing data to the ROM are successively performed. When one set of ROM has been written, control is automatically returned to the OS.

When a file is loaded, the PG buffer is also initialized (processing of the MF command of the PG-1500).

If an error is found when control has been returned to the OS, an error message is displayed (refer to "**CHAPTER 7 ERROR MESSAGES**").

Input on start-up A>PG1500 –A (or /A) [filename] ↵

If the ESC key is input during the auto mode, execution is aborted and control is returned to the OS[Note].

When CTRL+C is input, the PG1500C is terminated, and control is returned to the OS.

Note Except during operation to ROM ★

Figure 5-1. Auto Mode Execution Screen 1

```
***** AUTO MODE *****
F/FILENAME    = TEST.HEX
R/ROM         = UPD27C2001
C/CONV        = 16bit/2
H/HEX FORMAT  = Intel_HEX
I/INTERFACE   = SERIAL
E/END
```

```
<Message>
CONFIG FILE = PG1500.PGC
```

```
ROM Check:
```

When one ROM has been completely written, the messages shown in Figure 5-2 are displayed (except in the NORMAL mode).

Figure 5-2. Auto Mode Execution Screen 2

```
***** AUTO MODE *****
F/FILENAME   = TEST.HEX
R/ROM        = UPD27C2001
C/CONV       = 16bit/2
H/HEX FORMAT = Intel_HEX
I/INTERFACE  = SERIAL
E/END
```

```
<Message>
CONFIG FILE = PG1500.PGC
```

```
ROM Check: UPD27C2001
File Loading
Writing (BE (even address))

ROM erase OK!
Now, data writing!
Data complete
Check sum: 78D6

Write completed.
Next is BO (odd address).
Change ROM, and push any key.
```

If the CONV is "NORMAL", only the message "Writing (NN)" is displayed. If it is "16-bit 2-partition", the message "Writing (BE (even address)) is displayed. In other words, the address mapping method is displayed enclosed in ( ) (refer to "**<3> CONV**" in "**4.1.1 Configuration area**").

Data are written to the even addresses and then to the odd addresses if the number of partitions is 2. If the number of partitions is 4, data are written to 00, 01, 02, and 03, in that order.

[MEMO]

CHAPTER 6 TERMINAL MODE

In the terminal mode. the commands listed in Table 6-1 are input along with parameters such as addresses in order to manipulate the PG-1500.

When the terminal mode is set, the following screen is displayed:

```
***** TERMINAL MODE *****


PG>■
```

PG> is the prompt, indicating that the PG1500C is in the command input wait status of the terminal mode.

In the terminal mode, the commands listed in Table 6-1 can be used (for the error messages, refer to "**CHAPTER 7 ERROR MESSAGES**").

Input on start-up A>PG1500 –T (or /T)

If the ESC key is input during command execution, the command is aborted, and the PG1500C enters the command input wait status[Note].

When CTRL+C is input, the PG1500C is terminated, and control is returned to the OS.

Note Except operation to ROM

Table 6-1. Commands Used in Terminal Mode

Command Name	Function
RR	Reads ROM data.
RS	Selects ROM.
RV	Compares ROM data with PG-1500's memory data.
RW	Writes PG-1500's memory data to ROM.
RZ	Checks erasure status of ROM.
MC	Changes PG-1500's memory data.
MD	Displays PG-1500's memory data.
MF	Initializes PG-1500's memory data.
LI	Transfers file in Intel HEX format to PG-1500's memory (serial).
LM	Transfers file in Motorola S format to PG-1500's memory (serial).
LT	Transfers file in TEK expanded HEX format to PG-1500's memory (serial).
SI	Saves PG-1500's memory data to file in Intel HEX format.
SM	Saves PG-1500's memory data to file in Motorola S format.
ST	Saves PG-1500's memory data to file in TEK expanded HEX format.
PI	Transfers file in Intel HEX format to PG-1500's memory (parallel).
PM	Transfers file in Motorola S format to PG-1500's memory (parallel).
PT	Transfers file in TEK expanded HEX format to PG-1500's memory (parallel).
? ?	Command help
OS	Starts up OS SHELL (once returns control to OS).

The meanings of the symbols used for command description are as follows:

Symbol	Meaning
ROM_S_ADR	PROM start address
ROM_E_ADR	PROM end address
PG_S_ADR	PG-1500 buffer start address
PG_E_ADR	PG-1500 buffer end address
CONV	Specifies address partition type as follows: N Normal (no address partition) BE 16-bit data, 2 partitions, even addresses BO 16-bit data, 2 partitions, odd addresses WE 32-bit data, 2 partitions, even addresses WO 32-bit data, 2 partitions, odd addresses 0 32-bit data, 4 partitions, block 0 1 32-bit data, 4 partitions, block 1 2 32-bit data, 4 partitions, block 2 3 32-bit data, 4 partitions, block 3
↵	Return key input
_ (underline)	Input from keyboard

Remarks 1. Input an address as a 5-digit hexadecimal number. If six or more digits are input, an error occurs. ★

2. If a symbol other than those specified above is input to specify address partitioning, an error occurs.

6.1 R Commands

Five R commands are available: "RR", "RS", "RV", "RW", and "RZ". The function, input format, execution example, and abbreviated format of each command are described below.

6.1.1 RR command

[Function] Reads data in a specified range from the ROM inserted into the socket to the internal memory of the PG-1500.

[Input format] PG>RR [ROM_S_ADR] [,ROM_E_ADR] [,PG_S_ADR] [,CONV] ↵

ROM_S_ADR: Input (PROM start address).
ROM_E_ADR: Input (PROM end address).
PG_S_ADR : Input (PG-1500 buffer start address).
CONV : Select (address partition type).

[Execution example] In the case of
- ROM_S_ADR = 00
- ROM_E_ADR = FFFF
- PG_S_ADR = 00
- CONV = BE

During normal execution

```
PG>RR 0,FFFF,0,BE ↵
Now, data reading !
Data complete !
Check sum : 7E40

PG>■
```

If error occurs during verification

```
PG>RR 0,FFFF,0,BF ↵
Now,  data reading !
ERR20 Data not completed ! !

 Adr      ROM data      RAM data
00000       FF            00

Continue (Y: Yes/N: No)?
```

If the message [Continue (Y:Yes/N:No)?] is displayed during execution, input Y or N in response. Table 6-2 shows the operation to be performed when Y or N is input.

Table 6-2. Input Functions during an RR Command Error

Input	Function
Y	Executes verification again starting from address next to that displayed
N	Aborts verification
Others	Displays [Continue] message again

[Abbreviated format] In the terminal mode, commands can be input in an abbreviated format. Table 6-3 shows the variations of abbreviations.

Table 6-3. Abbreviated Formats of RR Command

Input Format	ROM_S_ADR	ROM_E_ADR	PG_S_ADR	CONV	Remark
RR ROM_S_ADR,ROM_E_ADR,PG_S_ADR,CONV	Address input	Address input	Address input	Input	
RR ROM_S_ADR,ROM_E_ADR,PG_S_ADR,	Address input	Address input	Address input	N	
RR ROM_S_ADR,ROM_E_ADR,PG_S_ADR	Address input	Address input	Address input	N	
RR ROM_S_ADR,ROM_E_ADR,,CONV	Address input	Address input	0	Input	
RR ROM_S_ADR,ROM_E_ADR,,	Address input	Address input	0	N	
RR ROM_S_ADR,ROM_E_ADR	Address input	Address input	0	N	
RR ROM_S_ADR,,PG_S_ADR,CONV	Address input	0	Address input	Input	**Note 1**
RR ROM_S_ADR,,PG_S_ADR,	Address input	0	Address input	N	**Note 1**
RR ROM_S_ADR,,PG_S_ADR	Address input	0	Address input	N	**Note 1**
RR ROM_S_ADR,,,CONV	Address input	0	0	Input	**Note 1**
RR ROM_S_ADR,,,	Address input	0	0	N	**Note 1**
RR ROM_S_ADR,,	Address input	0	0	N	**Note 1**
RR ROM_S_ADR,	Address input	0	0	N	**Note 1**
RR ROM_S_ADR	Address input	0	0	N	**Note 1**
RR ,ROM_E_ADR,PG_S_ADR,CONV	0	Address input	Address input	Input	
RR ,ROM_E_ADR,PG_S_ADR,	0	Address input	Address input	N	
RR ,ROM_E_ADR,PG_S_ADR	0	Address input	Address input	N	
RR ,ROM_E_ADR,,CONV	0	Address input	0	Input	
RR ,ROM_E_ADR,,	0	Address input	0	N	
RR ,ROM_E_ADR	0	Address input	0	N	
RR ,,PG_S_ADR,CONV	0	0	Address input	Input	
RR ,,PG_S_ADR,	0	0	Address input	N	
RR ,,PG_S_ADR	0	0	Address input	N	
RR ,,,CONV	0	0	0	Input	
RR ,,,	0	0	0	N	
RR ,,	0	0	0	N	
RR ,	0	0	0	N	
RR	0	Set ROM_E_ADR **Note 2**	0	N	

Notes 1. If ROM_S_ADR > ROM_E_ADR, an error occurs.

2. Input the end address of the selected ROM when CODE is selected.
When READ is selected, input the end address of the ROM set by the silicon signature data previously read.
When AUTO is selected, input the end address of the ROM set by the read silicon signature data.

6.1.2 RS command

[Function] Selects an inserted device (SELECT). How the device is selected is specified by subcommands C, R, and A.

Table 6-4. Subcommands of RS Command and Their Functions

Subcommand	Function
C (CODE)	Inputs code number during RS command execution and selects device.
R (READ)	Reads silicon signature during RS command execution and selects device.
A (AUTO)	Reads silicon signature during execution of RR, RW, RV, or RZ command, and selects device.
Others or omission	Error

Caution The C subcommand can be used with general-purpose PROMs or devices whose writing conditions are the same as those of general-purpose PROMs.
Subcommands R and A can be used only with silicon signature compatible products.

[Input format]

1. PG>RS C↵
2. PG>RS R↵
3. PG>RS A↵

↑
Subcommand

Input any of 1 to 3 above.
If a character other than C, R, and A is input as a subcommand, an error occurs.

```
PG>RS F↵

ERR16
Command syntax error

PG>■
```

[Execution example 1] PG>RS C↵

– With 27A board –

During normal execution

```
PG>RS C↵

ROM SELECT
 1004=uPD27256     (VPP=21V)   (N)     10A4=uPD27C256  (VPP=21V)   (N)
 10C4=uPD27256A    (VPP=12.5V) (F/N)   1064=uPD27C256A (VPP=12.5V) (F/N)
 1025=uPD27C512    (VPP=12.5V) (F/N)   1086=uPD27C1000 (VPP=12.5V) (N)
 1016=uPD27C1000A  (VPP=12.5V) (P/N)   1046=uPD27C1001 (VPP=12.5V) (N)
 10D6=uPD27C1001A  (VPP=12.5V) (P/N)   1026=uPD27C1024 (VPP=12.5V) (N)
 10B6=uPD27C1024A  (VPP=12.5V) (P/N)   10C7=uPD27C2001 (VPP=12.5V) (P/N)
 10C8=uPD27C4001   (VPP=12.5V) (N)     10A8=uPD27C4096 (VPP=12.5V) (N)
Please input code No.=1004↵

PG>■
```

If error occurs

```
PG>RS C ↵

ROM SELECT
 1004=uPD27256     (VPP=21V)    (N)     10A4=uPD27C256   (VPP=21V)    (N)
 10C4=uPD27256A    (VPP=12.5V)  (F/N)   1064=uPD27C256A  (VPP=12.5V)  (F/N)
 1025=uPD27C512    (VPP=12.5V)  (F/N)   1086=uPD27C1000  (VPP=12.5V)  (N)
 1016=uPD27C1000A  (VPP=12.5V)  (P/N)   1046=uPD27C1001  (VPP=12.5V)  (N)
 10D6=uPD27C1001A  (VPP=12.5V)  (P/N)   1026=uPD27C1024  (VPP=12.5V)  (N)
 10B6=uPD27C1024A  (VPP=12.5V)  (P/N)   10C7=uPD27C2001  (VPP=12.5V)  (P/N)
 10C8=uPD27C4001   (VPP=12.5V)  (N)     10A8=uPD27C4096  (VPP=12.5V)  (N)
Please input code No.=1000 ↵

ROM SELECT
 1004=uPD27256     (VPP=21V)    (N)     10A4=uPD27C256   (VPP=21V)    (N)
 10C4=uPD27256A    (VPP=12.5V)  (F/N)   1064=uPD27C256A  (VPP=12.5V)  (F/N)
 1025=uPD27C512    (VPP=12.5V)  (F/N)   1086=uPD27C1000  (VPP=12.5V)  (N)
 1016=uPD27C1000A  (VPP=12.5V)  (P/N)   1046=uPD27C1001  (VPP=12.5V)  (N)
 10D6=uPD27C1001A  (VPP=12.5V)  (P/N)   1026=uPD27C1024  (VPP=12.5V)  (N)
 10B6=uPD27C1024A  (VPP=12.5V)  (P/N)   10C7=uPD27C2001  (VPP=12.5V)  (P/N)
 10C8=uPD27C4001   (VPP=12.5V)  (N)     10A8=uPD27C4096  (VPP=12.5V)  (N)
Please input code No.= ■
```

If a number not displayed is input, the message "Please input code No. =" is displayed again. To exit from subcommand C, press the ↵ key.

– With 04A board –

Subcommand C cannot be used. If an attempt is made to use the subcommand, an error message is displayed.

```
RG>RS C ↵

ERR39
Adapter board not connected

PG> ■
```

[Execution example 2] PG>RS R↵

– With μPD75P108B –

During normal execution

```
PG>RS R↵

Your setting ROM is D75P108B

PG>■
```

If error occurs

```
PG>RS R↵

ERR32
Signature read error

PG>■
```

[Execution example 3] PG>RS A↵ (only in select mode)

```
PG>RS A↵

PG>
```

The silicon signature has not been read when only the RS command has been executed. It is read when the RR, RW, RV, or RZ command is executed.

6.1.3 RV command

[Function] Compares the data of the device inserted to the socket with the data in the internal memory of the PG-1500.

[Input format] PG>RV [ROM_S_ADR] [,ROM_E_ADR] [,PG_S_ADR] [,CONV] ↵

ROM_S_ADR: Input (PROM start address).
ROM_E_ADR: Input (PROM end address).
PG_S_ADR : Input (PG-1500 buffer start address).
CONV : Select (address partition type).

[Execution example] In the case of
- ROM_S_ADR = 00
- ROM_E_ADR = 1FFF
- PG_S_ADR = 00
- CONV = N

During normal execution

```
PG>RV 0,1FFF,0,N ↵

Now ,  data reading !
Data complete
Check sum : 78D6

PG>■
```

If error occurs during verification

```
PG>RV 0,FFFF,0,BE ↵

Now , data reading !
ERR20 Data not completed ! !

 Adr      ROM data       RAM data
00000       FF             00

Continue (Y:Yes/N:No)?
```

If the message [Continue (Y:Yes/N:No)?] is displayed during execution, input Y or N in response. Table 6-5 shows the operation to be performed when Y or N is input.

Table 6-5. Input Functions during an RV Command Error

Input	Function
Y	Executes verification again starting from address next to that displayed
N	Aborts verification
Others	Displays [Continue] message again

[Abbreviated format] In the terminal mode, commands can be input in an abbreviated format. Table 6-6 shows the variations of abbreviations.

Table 6-6. Abbreviated Formats of RV Command

Input Format	ROM_S_ADR	ROM_E_ADR	PG_S_ADR	CONV	Remark
RV ROM_S_ADR,ROM_E_ADR,PG_S_ADR,CONV	Address input	Address input	Address input	Input	
RV ROM_S_ADR,ROM_E_ADR,PG_S_ADR,	Address input	Address input	Address input	N	
RV ROM_S_ADR,ROM_E_ADR,PG_S_ADR	Address input	Address input	Address input	N	
RV ROM_S_ADR,ROM_E_ADR,,CONV	Address input	Address input	0	Input	
RV ROM_S_ADR,ROM_E_ADR,,	Address input	Address input	0	N	
RV ROM_S_ADR,ROM_E_ADR	Address input	Address input	0	N	
RV ROM_S_ADR,,PG_S_ADR,CONV	Address input	0	Address input	Input	**Note 1**
RV ROM_S_ADR,,PG_S_ADR,	Address input	0	Address input	N	**Note 1**
RV ROM_S_ADR,,PG_S_ADR	Address input	0	Address input	N	**Note 1**
RV ROM_S_ADR,,,CONV	Address input	0	0	Input	**Note 1**
RV ROM_S_ADR,,,	Address input	0	0	N	**Note 1**
RV ROM_S_ADR,,	Address input	0	0	N	**Note 1**
RV ROM_S_ADR,	Address input	0	0	N	**Note 1**
RV ROM_S_ADR	Address input	0	0	N	**Note 1**
RV ,ROM_E_ADR,PG_S_ADR,CONV	0	Address input	Address input	Input	
RV ,ROM_E_ADR,PG_S_ADR,	0	Address input	Address input	N	
RV ,ROM_E_ADR,PG_S_ADR	0	Address input	Address input	N	
RV ,ROM_E_ADR,,CONV	0	Address input	0	Input	
RV ,ROM_E_ADR,,	0	Address input	0	N	
RV ,ROM_E_ADR	0	Address input	0	N	
RV ,,PG_S_ADR,CONV	0	0	Address input	Input	
RV ,,PG_S_ADR,	0	0	Address input	N	
RV ,,PG_S_ADR	0	0	Address input	N	
RV ,,,CONV	0	0	0	Input	
RV ,,,	0	0	0	N	
RV ,,	0	0	0	N	
RV ,	0	0	0	N	
RV	0	Set ROM_E_ADR **Note 2**	0	N	

Notes 1. If ROM_S_ADR > ROM_E_ADR, an error occurs.

2. Input the end address of the selected ROM when CODE is selected.
When READ is selected, input the end address of the ROM set by the silicon signature data previously read.
When AUTO is selected, input the end address of the ROM set by the read silicon signature data.

6.1.4 RW command

[Function] Writes the data at a specified address of the internal memory of the PG-1500 and those that follow to a specified address range of a device inserted to the socket but not written.

[Input format] PG>RW [ROM_S_ADR] [,ROM_E_ADR] [,PG_S_ADR] [,CONV] ↵

ROM_S_ADR: Input (PROM start address).
ROM_E_ADR: Input (PROM end address).
PG_S_ADR : Input (PG-1500 buffer start address).
CONV : Select (address partition type).

[Execution example] In the case of
- ROM_S_ADR = 00
- ROM_E_ADR = 1FFF
- PG_S_ADR = 00
- CONV = N

During normal execution

```
PG>RW 0,1FFF,0,N ↵

Now , data writing !
Data complete
Check sum: 78D6

PG>■
```

If error occurs during verification

```
PG>RW 0,FFFF,0,BE ↵

Now , data writing !
ERR20 Data not completed ! !

 Adr      ROM data      RAM data
00000       FF            00

Continue (Y:Yes/N:No)?
```

If the message [Continue (Y:Yes/N:No)?] is displayed during execution, input Y or N in response. Table 6-7 shows the operation to be performed when Y or N is input.

Table 6-7. Input Functions during an RW Command Error

Input	Function
Y	Executes verification again starting from address next to that displayed
N	Aborts writing
Others	Displays [Continue] message again

[Abbreviated format] In the terminal mode, commands can be input in an abbreviated format. Table 6-8 shows the variations of abbreviations.

Table 6-8. Abbreviated Formats of RW Command

Input Format	ROM_S_ADR	ROM_E_ADR	PG_S_ADR	CONV	Remark
RW ROM_S_ADR,ROM_E_ADR,PG_S_ADR,CONV	Address input	Address input	Address input	Input	
RW ROM_S_ADR,ROM_E_ADR,PG_S_ADR,	Address input	Address input	Address input	N	
RW ROM_S_ADR,ROM_E_ADR,PG_S_ADR	Address input	Address input	Address input	N	
RW ROM_S_ADR,ROM_E_ADR,,CONV	Address input	Address input	0	Input	
RW ROM_S_ADR,ROM_E_ADR,,	Address input	Address input	0	N	
RW ROM_S_ADR,ROM_E_ADR	Address input	Address input	0	N	
RW ROM_S_ADR,,PG_S_ADR,CONV	Address input	0	Address input	Input	**Note 1**
RW ROM_S_ADR,,PG_S_ADR,	Address input	0	Address input	N	**Note 1**
RW ROM_S_ADR,,PG_S_ADR	Address input	0	Address input	N	**Note 1**
RW ROM_S_ADR,,,CONV	Address input	0	0	Input	**Note 1**
RW ROM_S_ADR,,,	Address input	0	0	N	**Note 1**
RW ROM_S_ADR,,	Address input	0	0	N	**Note 1**
RW ROM_S_ADR,	Address input	0	0	N	**Note 1**
RW ROM_S_ADR	Address input	0	0	N	**Note 1**
RW ,ROM_E_ADR,PG_S_ADR,CONV	0	Address input	Address input	Input	
RW ,ROM_E_ADR,PG_S_ADR,	0	Address input	Address input	N	
RW ,ROM_E_ADR,PG_S_ADR	0	Address input	Address input	N	
RW ,ROM_E_ADR,,CONV	0	Address input	0	Input	
RW ,ROM_E_ADR,,	0	Address input	0	N	
RW ,ROM_E_ADR	0	Address input	0	N	
RW ,,PG_S_ADR,CONV	0	0	Address input	Input	
RW ,,PG_S_ADR,	0	0	Address input	N	
RW ,,PG_S_ADR	0	0	Address input	N	
RW ,,,CONV	0	0	0	Input	
RW ,,,	0	0	0	N	
RW ,,	0	0	0	N	
RW ,	0	0	0	N	
RW	0	Set ROM_E_ADR **Note 2**	0	N	

Notes 1. If ROM_S_ADR > ROM_E_ADR, an error occurs.

2. Input the end address of the selected ROM when CODE is selected.
When READ is selected, input the end address of the ROM set by the silicon signature data previously read.
When AUTO is selected, input the end address of the ROM set by the read silicon signature data.

6.1.5 RZ command

[Function] Checks whether the device inserted to the socket has not been written.

[Input format] PG>RZ ↵

[Execution example]

During normal execution

```
PG>RZ ↵

ROM erase OK !

PG>■
```

If data are not erased

```
PG>RZ ↵

ERR28 ROM not erased ! !
 Adr   ROM data
00000    FE

Continue (Y:Yes/N:No)?
```

If the message [Continue (Y:Yes/N:No)?] is displayed during execution, input Y or N in response. Table 6-9 shows the operation to be performed when Y or N is input.

Table 6-9. Input Functions during an RZ Command Error

Input	Function
Y	Executes blank check again starting from address next to that displayed
N	Aborts the blank check
Others	Displays [Continue] message again

6.2 M Commands

Three M commands are available: "MC", "MD", and "MF". The function, input format, execution example, and abbreviated format of each command are described below.

6.2.1 MC command

[Function] Changes the contents of the PG-1500's internal memory.

[Input format] PG>MC [PG_S_ADR] ↵

PG_S_ADR: Input (PG-1500 buffer start address).

[Execution example] Where PG_S_ADR = 100

```
PG>MC 100 ↵

00100 FF-
```

In this status, the following data and keys can be input:

Table 6-10. Data That Can Be Input during MC Command Execution and Their Functions

Input	Function
2-digit hexadecimal data	Changes data
Space key	Does not change data but displays data of next address
Return key	Ends changing data

[Abbreviated format] In the terminal mode, the command can be input in the abbreviated format. Table 6-11 shows the variations of the abbreviated formats of the MC command.

Table 6-11. Abbreviated Formats of MC Command

Input Format	PG_S_ADR
MC PG_S_ADR	Address input
MC	0

6.2.2 MD command

[Function] Displays the data in a specified range of the internal memory of the PG-1500.

[Input format] PG>MD [PG_S_ADR] [,PG_E_ADR] ↵

PG_S_ADR: Input (PG-1500 buffer start address).
PG_E_ADR: Input (PG-1500 buffer end address).

[Execution example] In the case of ┌ PG_S_ADR = 00
└ PG_E_ADR = FF

```
PG>MD 0,FF ↵
PG_A  +0 +1 +2 +3 +4 +5 +6 +7  +8 +9 +A +B +C +D +E +F
00000 00 00 00 00 00 00 00 00  00 00 00 00 00 00 00 00
00010 00 00 00 00 00 00 00 00  00 00 00 00 00 00 00 00
00020 00 00 00 00 00 00 00 00  00 00 00 00 00 00 00 00
00030 00 00 00 00 00 00 00 00  00 00 00 00 00 00 00 00
00040 00 00 00 00 00 00 00 00  00 00 00 00 00 00 00 00
00050 00 00 00 00 00 00 00 00  00 00 00 00 00 00 00 00
00060 00 00 00 00 00 00 00 00  00 00 00 00 00 00 00 00
00070 00 00 00 00 00 00 00 00  00 00 00 00 00 00 00 00
00080 00 00 00 00 00 00 00 00  00 00 00 00 00 00 00 00
00090 00 00 00 00 00 00 00 00  00 00 00 00 00 00 00 00
000A0 00 00 00 00 00 00 00 00  00 00 00 00 00 00 00 00
000B0 00 00 00 00 00 00 00 00  00 00 00 00 00 00 00 00
000C0 00 00 00 00 00 00 00 00  00 00 00 00 00 00 00 00
000D0 00 00 00 00 00 00 00 00  00 00 00 00 00 00 00 00
000E0 00 00 00 00 00 00 00 00  00 00 00 00 00 00 00 00
000F0 00 00 00 00 00 00 00 00  00 00 00 00 00 00 00 00

PG> ■
```

After the instruction has been executed and while data is displayed, the following keys are valid:

Table 6-12. Keys That Can Be Input during MD Command Execution and Their Functions

Input Key	Function
CTRL+S	Aborts display
CTRL+Q	Resumes display
Space key	Stops display
ESC	

[Abbreviated format] In the terminal mode, the command can be input in the abbreviated format. Table 6-13 shows the variations of the abbreviated formats of the MD command.

Table 6-13. Abbreviated Formats of MD Command

Input Format	PG_S_ADR	PG_E_ADR	Remark
MD PG_S_ADR,PG_E_ADR	Address input	Address input	
MD PG_S_ADR,	Address input	0	**Note**
MD PG_S_ADR	Address input	PG_S_ADR+FFH	
MD ,PG_E_ADR	0	Address input	
MD ,	0	0	
MD	0	FFH	

Note If PG_S_ADR > PG_E_ADR, an error occurs.

6.2.3 MF command

[Function] Initializes the contents of the internal memory of the PG-1500 in a specified range with specified data.

[Input format] PG>MF [PG_S_ADR] [,PG_E_ADR] [,INT_DATA] ↵

PG_S_ADR : Input (PG-1500 buffer start address).
PG_E_ADR : Input (PG-1500 buffer end address).
INT_DATA : (Initialization data)

[Execution example] In the case of ┌ PG_S_ADR = 00
PG_E_ADR = FFFF
└ INT_DATA = FF

```
PG>MF 0,FFFF,FF ↵

PG>■
```

[Abbreviated format] In the terminal mode, the command can be input in the abbreviated format. Table 6-14 shows the variations of the abbreviated formats of the MF command.

Table 6-14. Abbreviated Formats of MF Command

Input Format[Note 1]	PG_S_ADR	PG_E_ADR	INT_DATA	Remark
MF PG_S_ADR,PG_E_ADR,INT_DATA	Address input	Address input	Data input	
MF PG_S_ADR,,INT_DATA	Address input	0	Data input	**Note 2**
MF ,PG_E_ADR,INT_DATA	0	Address input	Data input	
MF ,,INT_DATA	0	0	Data input	

Notes 1. An input format other than these causes an error.
2. If PG_S_ADR > PG_E_ADR, an error occurs.

6.3 L Commands

Three L commands are available: "LI", "LM", and "LT". The function, input format, execution example, and abbreviated format of each command are described below.

[Function] Transfers a file in (1) Intel Hex format, (2) Motorola S format, and (3) TEK expanded HEX format to the memory of the PG-1500.

[Input format]

1. PG>LI ↵ (1)
2. PG>LM ↵ (2)
3. PG>LT ↵ (3)

Input any of (1) to (3) above.

[Execution example] PG>LI ↵

```
PG>LI ↵

FILENAME=TEST. HEX

Load Complete

PG>■
```

To abort loading, input the ESC key.
When loading is stopped, the PG1500C automatically closes the file.

```
PG>LI ↵

FILENAME=TEST. HEX

LOAD ADDRESS... [0000:00A0]          ←ESC key is input here.

Aborted

PG>■
```

If an error occurs such as that the specified file cannot be found, or that the file cannot be opened, an error message is displayed (refer to "**CHAPTER 7 ERROR MESSAGES**").

6.4 S Commands

Three S commands are available: "SI", "SM", and "ST". The function, input format, execution example, and abbreviated format of each command are described below.

[Function] Saves data from PG_S_ADR to PG_E_ADR in (1) Intel Hex format, (2) Motorola S format, and (3) TEK expanded HEX format, in accordance with a specified file name.

[Input format]

1. PG>SI [PG_S_ADR] [,PG_E_ADR] ↵ (1)
2. PG>SM [PG_S_ADR] [,PG_E_ADR] ↵ (2)
3. PG>ST [PG_S_ADR] [,PG_E_ADR] ↵ (3)

<1>: Input PG_S_ADR (PG-1500 buffer start address).
<2>: Input PG_E_ADR (PG-1500 buffer end address).

Input any of (1) to (3) above.

[Execution example] PG>SI 00000, 01FFF ↵

```
PG>SI 00000,01FFF ↵

FILENAME=TEST. HEX

Save Complete

PG>■
```

If a file name is not input, the data sent from the PG-1500 are displayed on the screen.
To abort saving, input the ESC key.
When saving is stopped, the PG1500C automatically closes the file and erases the saved file.

```
PG>SI 0,1FFF ↵

FILENAME=TEST. HEX

SAVE ADDRESS... [0000:00A0]          ←ESC key is input here.

Aborted

PG>■
```

If an error occurs such as that the file cannot be opened, an error message is displayed (refer to "**CHAPTER 7 ERROR MESSAGES**").

[Abbreviated format] In the terminal mode, the command can be input in the abbreviated format. Table 6-15 shows the variations of the abbreviated formats of the SI command.

Table 6-15. Abbreviated Formats of SI Command

Input Format	PG_S_ADR	PG_E_ADR	Remark
SI PG_S_ADR,PG_E_ADR	Address input	Address input	
SI ,PG_E_ADR	0	Address input	
SI PG_S_ADR,	Address input	0	**Note**
SI PG_S_ADR	Address input	PG_S_ADR+FFH	
SI ,	0	0	
SI	0	FFH	

Note If PG_S_ADR > PG_E_ADR, an error occurs.

6.5 P Commands

Three P commands are available: "PI", "PM", and "PT". The function, input format, execution example, and abbreviated format of each command are described below.

[Function] Transfers a specified file in (1) Intel HEX format, (2) Motorola S format, and (3) TEK expanded HEX format to the memory of the PG-1500 via parallel I/F.

[Input format]

1. PG>PI ↵ (1)
2. PG>PM ↵ (2)
3. PG>PT ↵ (3)

[Execution example] PG>PI ↵

```
PG>PI ↵

FILENAME=TEST.HEX

Load Complete

PG>■
```

If an error occurs such as that the specified file cannot be found, or that the file cannot be opened, an error message is displayed (refer to "**CHAPTER 7 ERROR MESSAGES**").

6.6 ?? Command

The function, input format, and execution example of the ?? command are described below.

[Function] Command help. Displays the input formats and functions of the commands in the terminal mode.

[Input format] PG>?? ↵

[Execution example]

```
PG>?? ↵

RR [ROM_S_ADR][,ROM_E_ADR][,PG_S_ADR][,CONV]   Reads ROM data.
RS R                                           Selects ROM (signature read)
RS A                                           Selects ROM (signature read during ROM operation)
RS C                                           Selects ROM (manual code input)
RV [ROM_S_ADR][,ROM_E_ADR][,PG_S_ADR][,CONV]   Verify (ROM <-> PG buffer)
RW [ROM_S_ADR][,ROM_E_ADR][,PG_S_ADR][,CONV]   Writes to ROM
RZ                                             Checks erasure status of ROM
MC [PG_S_ADR]                                  Changes PG buffer data
MD [PG_S_ADR][,PG_E_ADR]                       Displays PG buffer data
MF [PG_S_ADR][,PG_E_ADR],INIT_DATA             Initializes PG buffer data
LI                                             Serial input in Intel format
LM                                             Serial input in Motorola S format
LT                                             Serial input in TEK expanded format
SI [PG_S_ADR][,PG_E_ADR]                       Save in Intel format
SM [PG_S_ADR][,PG_E_ADR]                       Save in Motorola S format
ST [PG_S_ADR][,PG_E_ADR]                       Save in TEK expanded format
PI                                             Parallel input in Intel format
PM                                             Parallel input in Motorola S format
PT                                             Parallel input in TEK expanded format

PG> ■
```

6.7 OS Command

[Function] Starts the OS SHELL (once returns control to the OS).
Inputting EXIT ↵ causes the terminal mode to be set.

[Input format] PG>OS ↵

[Execution example]

```
PG>OS ↵

A >    :                          ←Prompt of MS-DOS
       :
       :

A>EXIT ↵

PG>■                              ←Terminal mode of PG1500C
```

CHAPTER 7 ERROR MESSAGES ★

Error No.	Display	Action
10	ERR10 START_ADR larger than END_ADR	Specify a start address higher than the end address.
11	ERR11 Address too large	The specified address must be lower than the last address of the ROM.
12	ERR12 Address requires less than 7FFFF	Specify an address that does not exceed the last address of the PG-1500 buffer.
13	ERR13 Mismatch ROM with split mode	Check the ROM name and split mode. Either replace the ROM or change the split mode (for the details on the address split mode, refer to the "**PG-1500 User's Manual**").
14	ERR14 Illegal character (only hexadecimal)	Only hexadecimal numbers can be used to input addresses and data.
15	ERR15 Illegal split mode Split mode (N, BE, BO, WE, WO, 0, 1, 2, 3)	Only specified symbols can be used to specify the address split mode (for details, refer to Figures 4-2 through 4-5).
16	ERR16 Command syntax error	Check the input format of the command. Correctly input the command.
17	ERR17 Illegal command	Correctly input the command.
1A	ERR1A File not found	Correctly input the file name.
1B	ERR1B Illegal option	Only A and T can be used as symbols to specify options. Correctly specify the option with A or T.
1C	ERR1C File can't open	Correctly input the file name.

Error No.	Display	Action
1D	ERR1D Illegal parameter	Do not input anything after the option to start the PG1500C in the terminal mode.
1E	ERR1E Configuration not completed	Necessary parameters are not written to the configuration file. Make the correct setting. This message may be displayed when the PG1500C is in the AUTO mode.
20	ERR20 Data not completed ! ! Adr ROM data RAM data xxxxx xxxx xxxx Continue (Y: Yes/N: No) ? --- Set or change ROM. **Note** Retry (Y: Yes/N: No) ?	Writing data to the ROM has failed. Input Y or N in accordance with the message. When Y is input, verification is continued starting from the next address. When N is input, the PG1500C returns to the command input wait status. Write the data to the ROM again.

Note The message shown below the broken line is displayed only when "N" is input in response to the message "Continue (Y: Yes/N: No)?" that is displayed when the auto write (W) command is executed in the auto or control mode.

Error No.	Display	Action
21	ERR21 Data not completed ! ! Adr ROM data RAM data xxxxx xxxx xxxx Continue (Y: Yes/N: No) ? --- Set or change ROM. **Note** Retry (Y: Yes/N: No) ?	The ROM data do not match the PG buffer data. Input Y or N in accordance with the message. When Y is input, verification is continued starting from the next address. When N is input, the PG1500C returns to the command input wait status. This error occurs when Vcc = 5.25 V or 5.5 V.
22	ERR22 Data not completed ! ! Adr ROM data RAM data xxxxx xxxx xxxx Continue (Y: Yes/N: No) ? --- Set or change ROM. **Note** Retry (Y: Yes/N: No) ?	The ROM data do not match the PG buffer data. Input Y or N in accordance with the message. When Y is input, verification is continued starting from the next address. When N is input, the PG1500C returns to the command input wait status. This error occurs when Vcc = 4.75 V or 4.5 V.
28	ERR28 Data not erased ! ! Adr ROM data xxxxx xxxx Continue (Y: Yes/N: No) ? --- Set or change ROM. **Note** Retry (Y: Yes/N: No) ?	Data is written to the set ROM. Take the following actions: 1. To write data, replace the ROM. 2. To continue the blank check, input Y or N in accordance with the message. When Y is input, blank check is continued starting from the next address. When N is input, the PG1500C returns to the command input wait status.

Note The message shown below the broken line is displayed only when "N" is input in response to the message "Continue (Y: Yes/N: No)?" that is displayed when the auto write (W) command is executed in the auto or control mode.

Error No.	Display	Action
2C	ERR2C Write error ! ! Adr ROM data xxxxx xxxx Continue (Y: Yes/N: No) ? --- Set or change ROM. **Note 1** Retry (Y: Yes/N: No)?	Data cannot be correctly written. Take the following actions: 1. Check whether the set ROM matches the selected ROM name. If they match, the ROM may be defective or connection may be faulty. Replace the ROM. 2. To continue writing starting from the next address, input Y or N in accordance with the message. When Y is input, writing is continued starting from the next address. When N is input, the PG1500C returns to the command input wait status. Note, however, that the data of the address at which the error has occurred is not correctly written.
30	ERR30 Signature read error --- Set or change ROM. **Note 2** Retry (Y: Yes/N: No)?	Silicon signature data cannot be read from the set ROM. Replace the ROM.

Notes 1. The message shown below the broken line is displayed only when "N" is input in response to the message "Continue (Y: Yes/N: No)?" that is displayed when the auto write (W) command is executed in the auto or control mode.

2. The message shown below the broken line is displayed only when the auto write (W) command is executed in the auto or control mode.

Error No.	Display	Action
31	ERR31 ROM signature different from the configuration --- Change ROM. **Note** Retry (Y: Yes/N: No)?	The set ROM is different from the selected ROM. Check the set ROM name or the corresponding general-purpose PROM name, and take the following actions: 1. When the auto write (W) command is used in the auto or control mode, change the setting of the configuration file and configuration area. 2. In the other case, redo ROM selection.
32	ERR32 Signature read error --- Set or change ROM. **Note** Retry (Y: Yes/N: No)?	Silicon signature data cannot be read from the set ROM. Replace the ROM. Or, check the set ROM name and corresponding general-purpose PROM name, and redo ROM selection.
38	ERR38 Device miss insertion	A ROM is not set, or is inserted in the wrong direction. Correctly insert the ROM.
39	ERR39 Adapter board not connected	The adapter board is not correctly connected. Correctly connect the adapter board.

Note The message shown below the broken line is displayed only when the auto write (W) command is executed in the auto or control mode.

Error No.	Display	Action
40	ERR40 Serial not ready (Check cable, baud rate, data length, etc.) Select **Q/QUIT**, and retry. B/BAUD RATE 1200 2400 4800 **9600** 19200 bauds P/PARITY ODD EVEN **NON** X/XON **ON** OFF C/DATA LENGTH **8** 7 bits S/STOP BIT **2** 1 bits **Q/QUIT**	The serial I/F cable is not correctly connected. Check the cable connection. If the cable is correctly connected, the setting of the serial I/F of the PG-1500 is different from that of the host machine. Match the setting.
41	ERR41 File data error	The specified HEX file cannot be used. Specify a HEX file that can be used.
51	ERR51 File can't close	The file name is wrong. Input the correct file name.
52	COMMAND.COM not found	Insert the floppy disk containing COMMAND.COM into the current drive.
54	Save failed (File write error)	Check the specification of the configuration file and the capacity of the floppy disk. Retry.
56	Can't set '0'	0 must not be set as the number of sets. Specify 1 or more.
62	Save failed (File write error)	The capacity of the floppy disk has run short.
64	Parallel not ready (Check parallel cable, etc.)	The parallel I/F is not correctly connected. Terminate the PG1500C once, turn off the power, check the connections, and then restart the PG1500C.

APPENDIX A EXAMPLE OF OPERATION IN CONTROL MODE

A.1 File → PROM Auto Write

To write a file to the PROM automatically by using the W command, set each parameter in the configuration area.

<1> Select W/AUTO.

```
***** CONTROL MODE *****          <Message>
F/FILENAME    = TEST.HEX         CONFIG FILE = TEST.PGC
R/ROM         = UPD27C512        Input a command.
C/CONV        = NORMAL
H/HEX FORMAT  = Intel_HEX
I/INTERFACE   = SERIAL
E/END

 W/AUTO  R/ROM  M/MEM  L/LOAD  S/SAVE  O/OS  C/CONF  Q/QUIT
```

<2> Input the number of sets.

```
***** CONTROL MODE *****          <Message>
F/FILENAME    = TEST.HEX         CONFIG FILE = TEST.PGC
R/ROM         = UPD27C512
C/CONV        = NORMAL
H/HEX FORMAT  = Intel_HEX
I/INTERFACE   = SERIAL
E/END

Number of sets = 1 ↵

 W/AUTO  R/ROM M/MEM L/LOAD S/SAVE O/OS C/CONF Q/QUIT
```

→ ROM select

```
***** CONTROL MODE *****          <Message>
F/FILENAME    = TEST.HEX         CONFIG FILE = TEST.PGC
R/ROM         = UPD27C512
C/CONV        = NORMAL
H/HEX FORMAT  = Intel_HEX
I/INTERFACE   = SERIAL
E/END

Number of sets = 1
ROM Check: UPD27C512

 W/AUTO  R/ROM M/MEM L/LOAD S/SAVE O/OS C/CONF Q/QUIT
```

```
***** CONTROL MODE *****
F/FILENAME   = TEST.HEX
R/ROM        = UPD27C512
C/CONV       - NORMAL
H/HEX FORMAT = Intel_HEX
I/INTERFACE  = SERIAL
E/END
```

```
<Message>
CONFIG FILE = TEST.PGC
```

→ File transfer to PG-1500 buffer

```
Number of sets = 1
ROM Check: UPD27C512
File Loading

LOAD ADDRESS ... [0000:01E0]
```

```
W/AUTO R/ROM M/MEM L/LOAD S/SAVE O/OS C/CONF Q/QUIT
```

```
***** CONTROL MODE *****
F/FILENAME   = TEST.HEX
R/ROM        = UPD27C512
C/CONV       = NORMAL
H/HEX FORMAT = Intel_HEX
I/INTERFACE  = SERIAL
E/END
```

```
<Message>
CONFIG FILE = TEST.PGC
```

→ Checking of ROM erasure status

```
Number of sets = 1
ROM Check: UPD27C512
File Loading
Writing (NN)

ROM erase OK:
```

```
W/AUTO R/ROM M/MEM L/LOAD S/SAVE O/OS C/CONF Q/QUIT
```

```
***** CONTROL MODE *****          <Message>
F/FILENAME    = TEST.HEX         CONFIG FILE = TEST.PGC
R/ROM         = UPD27C512
C/CONV        = NORMAL
H/HEX FORMAT = Intel_HEX
I/INTERFACE   = SERIAL
E/END

Number of sets = 1
ROM Check: UPD27C512
File Loading
Writing (NN)

ROM erase OK!
Now, data writing!

 W/AUTO  R/ROM M/MEM L/LOAD S/SAVE O/OS C/CONF Q/QUIT
```

→ Writing data to ROM

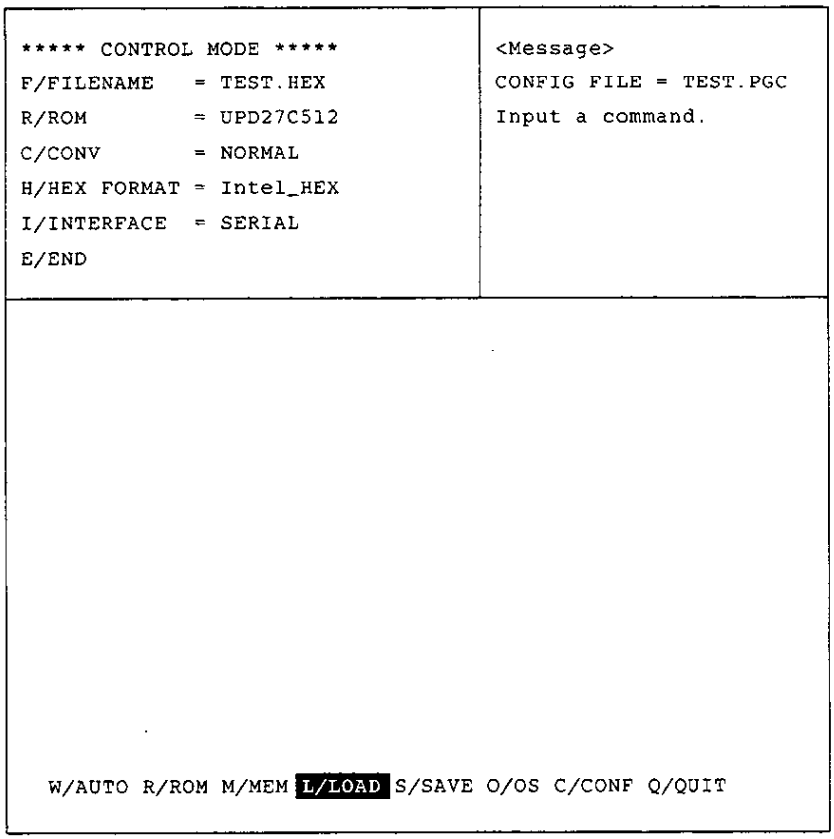
<3> Writing complete

```
***** CONTROL MODE *****          <Message>
F/FILENAME    = TEST.HEX         CONFIG FILE = TEST.PGC
R/ROM         = UPD27C512        Input a command.
C/CONV        = NORMAL
H/HEX FORMAT = Intel_HEX
I/INTERFACE   = SERIAL
E/END

Number of sets = 1
ROM Check: UPD27C512
File Loading
Writing (NN)

ROM erase OK:
Now, data writing:
Data complete
Check sum: 78D6

Write completed

 W/AUTO  R/ROM M/MEM L/LOAD S/SAVE O/OS C/CONF Q/QUIT
```

→ Check sum display

A.2 File → PG Buffer Read

<1> Select L/LOAD.



<2> Select "START" and press the ↵ key if parameters are to be changed.

```
***** CONTROL MODE *****          <Message>
F/FILENAME    = TEST.HEX         CONFIG FILE = TEST.PGC
R/ROM         = UPD27C512
C/CONV        = NORMAL
H/HEX FORMAT  = Intel_HEX
I/INTERFACE   = SERIAL
E/END

FILENAME = TEST.HEX

HEX FORMAT = [Intel_HEX] Motorola_S Tektronix_HEX
INTERFACE  = [SERIAL]    PARALLEL
[START]

  W/AUTO R/ROM M/MEM [L/LOAD] S/SAVE O/OS C/CONF Q/QUIT
```

<3> Load complete

```
***** CONTROL MODE *****          <Message>
F/FILENAME    = TEST.HEX         CONFIG FILE = TEST.PGC
R/ROM         = UPD27C512        Input a command.
C/CONV        = NORMAL
H/HEX FORMAT  = Intel_HEX
I/INTERFACE   = SERIAL
E/END

FILENAME = TEST.HEX

HEX FORMAT = [Intel_HEX] Motorola_S  Tektronix_HEX
INTERFACE  = [SERIAL]    PARALLEL

Load Complete

  W/AUTO R/ROM M/MEM [L/LOAD] S/SAVE O/OS C/CONF Q/QUIT
```

A.3 PROM → PG Buffer Read

<1> Select R/ROM.

```
***** CONTROL MODE *****          <Message>
F/FILENAME    = TEST.HEX         CONFIG FILE = TEST.PGC
R/ROM         = UPD27C512        Input a command.
C/CONV        = NORMAL
H/HEX FORMAT  = Intel_HEX
I/INTERFACE   = SERIAL
E/END

  W/AUTO R/ROM M/MEM L/LOAD S/SAVE O/OS C/CONF Q/QUIT
```

<2> Select S/SELECT ROM.

```
***** CONTROL MODE *****          <Message>
F/FILENAME    = TEST.HEX         CONFIG FILE = TEST.PGC
R/ROM         = UPD27C512
C/CONV        = NORMAL
H/HEX FORMAT  = Intel_HEX
I/INTERFACE   = SERIAL
E/END

R/DATA READ
S/SELECT ROM
V/VERIFY (MASTER ROM TO PG_BUFFER)
W/WRITE (PG_BUFFER TO ROM)
Z/ZERO CHECK (BLANK CHECK)

  W/AUTO R/ROM M/MEM L/LOAD S/SAVE O/OS C/CONF Q/QUIT
```

<3> Select R/SIGNATURE READ.

```
***** CONTROL MODE *****          <Message>
F/FILENAME    = TEST.HEX         CONFIG FILE = TEST.PGC
R/ROM         = UPD27C512        Set ROM.
C/CONV        = NORMAL           Input a command.
H/HEX FORMAT  = Intel_HEX
I/INTERFACE   = SERIAL
E/END

RS/SELECT ROM
R/SIGNATURE READ
A/SIGNATURE AUTO READ
C/CODE SELECT

Your setting ROM is uPD27C256A

  W/AUTO R/ROM M/MEM L/LOAD S/SAVE O/OS C/CONF Q/QUIT
```

→ The name of the set PROM is displayed.

<4> Select R/ROM.

```
***** CONTROL MODE *****          <Message>
F/FILENAME    = TEST.HEX         CONFIG FILE = TEST.PGC
R/ROM         = UPD27C512        Input a command.
C/CONV        = NORMAL
H/HEX FORMAT  = Intel_HEX
I/INTERFACE   = SERIAL
E/END

  W/AUTO R/ROM M/MEM L/LOAD S/SAVE O/OS C/CONF Q/QUIT
```

<5> Select R/DATA READ.

```
***** CONTROL MODE *****          <Message>
F/FILENAME    = TEST.HEX         CONFIG FILE = TEST.PGC
R/ROM         = UPD27C512
C/CONV        = NORMAL
H/HEX FORMAT  = Intel_HEX
I/INTERFACE   = SERIAL
E/END

R/DATA READ
S/SELECT ROM
V/VERIFY (MASTER ROM TO PG_BUFFER)
W/WRITE (PG_BUFFER TO ROM)
Z/ZERO CHECK (BLANK CHECK)

  W/AUTO R/ROM M/MEM L/LOAD S/SAVE O/OS C/CONF Q/QUIT
```

<6> Select "START" and press the ↵ key if parameters are to be changed.

```
***** CONTROL MODE *****          | <Message>
F/FILENAME    = TEST.HEX          | CONFIG FILE = TEST.PGC
R/ROM         = UPD27C512         |
C/CONV        = NORMAL            |
H/HEX FORMAT  = Intel_HEX         |
I/INTERFACE   = SERIAL            |
E/END                             |

RR/DATA READ
ROM START ADDRESS        = 00000
ROM END ADDRESS          = 07FFF
PG_BUFFER START ADDRESS  = 00000
CONV                     = NN BE BO WE WO 00 01 02 03
START

  W/AUTO R/ROM M/MEM L/LOAD S/SAVE O/OS C/CONF Q/QUIT
```

<7> Read complete

```
***** CONTROL MODE *****          | <Message>
F/FILENAME    = TEST.HEX          | CONFIG FILE = TEST.PGC
R/ROM         = UPD27C512         | Input a command.
C/CONV        = NORMAL            |
H/HEX FORMAT  = Intel_HEX         |
I/INTERFACE   = SERIAL            |
E/END                             |

RS/DATA READ
ROM START ADDRESS        = 00000
ROM END ADDRESS          = 07FFF
PG_BUFFER START ADDRESS  = 00000
CONV                     = NN BE BO WE WO 00 01 02 03

Now, data reading:
Data complete
Check sum: 78D6

  W/AUTO R/ROM M/MEM L/LOAD S/SAVE O/OS C/CONF Q/QUIT
```

→ Check sum display

A.4 PG Buffer → General-purpose PROM Write

<1> Select R/ROM.

```
***** CONTROL MODE *****          <Message>
F/FILENAME    = TEST.HEX         CONFIG FILE = TEST.PGC
R/ROM         = UPD27C512        Input a command.
C/CONV        = NORMAL
H/HEX FORMAT  = Intel_HEX
I/INTERFACE   = SERIAL
E/END

W/AUTO R/ROM M/MEM L/LOAD S/SAVE O/OS C/CONF Q/QUIT
```

<2> Select S/SELECT ROM.

```
***** CONTROL MODE *****          <Message>
F/FILENAME    = TEST.HEX         CONFIG FILE = TEST.PGC
R/ROM         = UPD27C512
C/CONV        = NORMAL
H/HEX FORMAT  = Intel_HEX
I/INTERFACE   = SERIAL
E/END

R/DATA READ
S/SELECT ROM
V/VERIFY (MASTER ROM TO PG_BUFFER)
W/WRITE (PG_BUFFER TO ROM)
Z/ZERO CHECK (BLANK CHECK)

  W/AUTO R/ROM M/MEM L/LOAD S/SAVE O/OS C/CONF Q/QUIT
```

<3> Select R/SIGNATURE READ.

```
***** CONTROL MODE *****          <Message>
F/FILENAME    = TEST.HEX         CONFIG FILE = TEST.PGC
R/ROM         = UPD27C512        Set ROM.
C/CONV        = NORMAL           Input a command.
H/HEX FORMAT  = Intel_HEX
I/INTERFACE   = SERIAL
E/END

RS/SELECT ROM
R/SIGNATURE READ
A/SIGNATURE AUTO READ
C/CODE SELECT

Your setting ROM is uPD27C256A

  W/AUTO R/ROM M/MEM L/LOAD S/SAVE O/OS C/CONF Q/QUIT
```

→ The name of the set PROM is displayed.

<4> Select R/ROM.

```
***** CONTROL MODE *****          <Message>
F/FILENAME    = TEST.HEX         CONFIG FILE = TEST.PGC
R/ROM         = UPD27C512        Input a command.
C/CONV        = NORMAL
H/HEX FORMAT  = Intel_HEX
I/INTERFACE   = SERIAL
E/END

  W/AUTO R/ROM M/MEM L/LOAD S/SAVE O/OS C/CONF Q/QUIT
```

<5> Select Z/ZERO CHECK (BLANK CHECK).

```
***** CONTROL MODE *****          <Message>
F/FILENAME    = TEST.HEX         CONFIG FILE = TEST.PGC
R/ROM         = UPD27C512
C/CONV        = NORMAL
H/HEX FORMAT  = Intel_HEX
I/INTERFACE   = SERIAL
E/END

R/DATA READ
S/SELECT ROM
V/VERIFY (MASTER ROM TO PG_BUFFER)
W/WRITE (PG_BUFFER TO ROM)
Z/ZERO CHECK (BLANK CHECK)

  W/AUTO R/ROM M/MEM L/LOAD S/SAVE O/OS C/CONF Q/QUIT
```

```
***** CONTROL MODE *****
F/FILENAME    = TEST.HEX
R/ROM         = UPD27C512
C/CONV        = NORMAL
H/HEX FORMAT = Intel_HEX
I/INTERFACE   = SERIAL
E/END
```

```
<Message>
CONFIG FILE = TEST.PGC
Input a command.
```

```
RZ/ZERO CHECK (BLANK CHECK)

ROM erase OK!

  W/AUTO R/ROM M/MEM L/LOAD S/SAVE O/OS C/CONF Q/QUIT
```

→ If the ROM contents have been erased, "ROM erase OK!" is displayed.

<6> Select R/ROM.

```
***** CONTROL MODE *****
F/FILENAME    = TEST.HEX
R/ROM         = UPD27C512
C/CONV        = NORMAL
H/HEX FORMAT = Intel_HEX
I/INTERFACE   = SERIAL
E/END
```

```
<Message>
CONFIG FILE = TEST.PGC
Input a command.
```

```
  W/AUTO R/ROM M/MEM L/LOAD S/SAVE O/OS C/CONF Q/QUIT
```

<7> Select W/WRITE (PG_BUFFER TO ROM).

```
***** CONTROL MODE *****          <Message>
F/FILENAME    = TEST.HEX         CONFIG FILE = TEST.PGC
R/ROM         = UPD27C512        Set ROM.
C/CONV        = NORMAL
H/HEX FORMAT  = Intel_HEX
I/INTERFACE   = SERIAL
E/END

R/DATA READ
S/SELECT ROM
V/VERIFY (MASTER ROM TO PG_BUFFER)
W/WRITE (PG_BUFFER TO ROM)
Z/ZERO CHECK (BLANK CHECK)

  W/AUTO R/ROM M/MEM L/LOAD S/SAVE O/OS C/CONF Q/QUIT
```

<8> Select "START" and press the ↵ key if parameters are to be changed.

```
***** CONTROL MODE *****          <Message>
F/FILENAME    = TEST.HEX         CONFIG FILE = TEST.PGC
R/ROM         = UPD27C512
C/CONV        = NORMAL
H/HEX FORMAT  = Intel_HEX
I/INTERFACE   = SERIAL
E/END

RW/WRITE (PG_BUFFER TO ROM)
ROM START ADDRESS        = 00000
ROM END ADDRESS          = 07FFF
PG_BUFFER START ADDRESS  = 00000
CONV                     = NN BE BO WE WO 00 01 02 03
START

  W/AUTO R/ROM M/MEM L/LOAD S/SAVE O/OS C/CONF Q/QUIT
```

<9> Writing complete

```
***** CONTROL MODE *****
F/FILENAME   = TEST.HEX
R/ROM        = UPD27C512
C/CONV       = NORMAL
H/HEX FORMAT = Intel_HEX
I/INTERFACE  = SERIAL
E/END
```

```
<Message>
CONFIG FILE = TEST.PGC
Input a command.
```

```
RW/WRITE (PG_BUFFER TO ROM)
ROM START ADDRESS        = 00000
ROM END ADDRESS          = 07FFF
PG_BUFFER START ADDRESS = 00000
CONV                     = NN BE BO WE WO 00 01 02 03

Now, data writing!
Data complete
Check sum: 78D6

  W/AUTO R/ROM M/MEM L/LOAD S/SAVE O/OS C/CONF Q/QUIT
```

→ Check sum display

A.5 PG Buffer → Silicon Signature Compatible Product[Note] Write

Note Refer to the PG-1500 User's Manual for the silicon signature compatible products.

<1> Select R/ROM.

```
***** CONTROL MODE *****          <Message>
F/FILENAME    = TEST.HEX         CONFIG FILE = TEST.PGC
R/ROM         = UPD27C512        Input a command.
C/CONV        = NORMAL
H/HEX FORMAT = Intel_HEX
I/INTERFACE   = SERIAL
E/END

  W/AUTO R/ROM M/MEM L/LOAD S/SAVE O/OS C/CONF Q/QUIT
```

<2> Select S/SELECT ROM.

```
***** CONTROL MODE *****          <Message>
F/FILENAME    = TEST.HEX         CONFIG FILE = TEST.PGC
R/ROM         = UPD27C512
C/CONV        = NORMAL
H/HEX FORMAT = Intel_HEX
I/INTERFACE   = SERIAL
E/END

R/DATA READ
S/SELECT ROM
V/VERIFY (MASTER ROM TO PG_BUFFER)
W/WRITE (PG_BUFFER TO ROM)
Z/ZERO CHECK (BLANK CHECK)

  W/AUTO R/ROM M/MEM L/LOAD S/SAVE O/OS C/CONF Q/QUIT
```

<3> Select R/SIGNATURE READ.

```
***** CONTROL MODE *****          <Message>
F/FILENAME    = TEST.HEX         CONFIG FILE = TEST.PGC
R/ROM         = UPD27C512        Set ROM.
C/CONV        = NORMAL           Input a command.
H/HEX FORMAT = Intel_HEX
I/INTERFACE   = SERIAL
E/END

RS/SELECT ROM
R/SIGNATURE READ
A/SIGNATURE AUTO READ
C/CODE SELECT

 Your setting ROM is D75P108B

  W/AUTO R/ROM M/MEM L/LOAD S/SAVE O/OS C/CONF Q/QUIT
```

→ The name of the set PROM is displayed.

<4> Select R/ROM.

```
***** CONTROL MODE *****
F/FILENAME    = TEST.HEX
R/ROM         = UPD27C512
C/CONV        = NORMAL
H/HEX FORMAT  = Intel_HEX
I/INTERFACE   = SERIAL
E/END
```

```
<Message>
CONFIG FILE = TEST.PGC
Input a command.
```

```
W/AUTO R/ROM M/MEM L/LOAD S/SAVE O/OS C/CONF Q/QUIT
```

<5> Select Z/ZERO CHECK (BLANK CHECK).

```
***** CONTROL MODE *****
F/FILENAME    = TEST.HEX
R/ROM         = UPD27C512
C/CONV        = NORMAL
H/HEX FORMAT  = Intel_HEX
I/INTERFACE   = SERIAL
E/END
```

```
<Message>
CONFIG FILE = TEST.PGC
```

```
R/DATA READ
S/SELECT ROM
V/VERIFY (MASTER ROM TO PG_BUFFER)
W/WRITE (PG_BUFFER TO ROM)
Z/ZERO CHECK (BLANK CHECK)
```

```
W/AUTO R/ROM M/MEM L/LOAD S/SAVE O/OS C/CONF Q/QUIT
```

```
***** CONTROL MODE *****
F/FILENAME    = TEST.HEX
R/ROM         = UPD27C512
C/CONV        = NORMAL
H/HEX FORMAT  = Intel_HEX
I/INTERFACE   = SERIAL
E/END
```

```
<Message>
CONFIG FILE = TEST.PGC
Input a command.
```

```
RZ/ZERO CHECK (BLANK CHECK)

ROM erase OK!
```

```
W/AUTO R/ROM M/MEM L/LOAD S/SAVE O/OS C/CONF Q/QUIT
```

→ If the ROM contents have been erased, "ROM erase OK!" is displayed.

<6> Select R/ROM.

```
***** CONTROL MODE *****
F/FILENAME    = TEST.HEX
R/ROM         = UPD27C512
C/CONV        = NORMAL
H/HEX FORMAT  = Intel_HEX
I/INTERFACE   = SERIAL
E/END
```

```
<Message>
CONFIG FILE = TEST.PGC
Input a command.
```

```
W/AUTO R/ROM M/MEM L/LOAD S/SAVE O/OS C/CONF Q/QUIT
```

<7> Select W/WRITE (PG_BUFFER TO ROM).

```
***** CONTROL MODE *****          <Message>
F/FILENAME    = TEST.HEX         CONFIG FILE = TEST.PGC
R/ROM         = UPD27C512
C/CONV        = NORMAL
H/HEX FORMAT  = Intel_HEX
I/INTERFACE   = SERIAL
E/END

R/DATA READ
S/SELECT ROM
V/VERIFY (MASTER ROM TO PG_BUFFER)
W/WRITE (PG_BUFFER TO ROM)
Z/ZERO CHECK (BLANK CHECK)

  W/AUTO R/ROM M/MEM L/LOAD S/SAVE O/OS C/CONF Q/QUIT
```

<8> Select "START" and press the ↵ key if parameters are to be changed.

```
***** CONTROL MODE *****          <Message>
F/FILENAME    = TEST.HEX         CONFIG FILE = TEST.PGC
R/ROM         = UPD27C512
C/CONV        = NORMAL
H/HEX FORMAT  = Intel_HEX
I/INTERFACE   = SERIAL
E/END

RW/WRITE (PG_BUFFER TO ROM)
ROM START ADDRESS        = 00000
ROM END ADDRESS          = 01FFF
PG_BUFFER START ADDRESS  = 00000
CONV                     = NN BE BO WE WO 00 01 02 03
START

  W/AUTO R/ROM M/MEM L/LOAD S/SAVE O/OS C/CONF Q/QUIT
```

<9> Writing complete

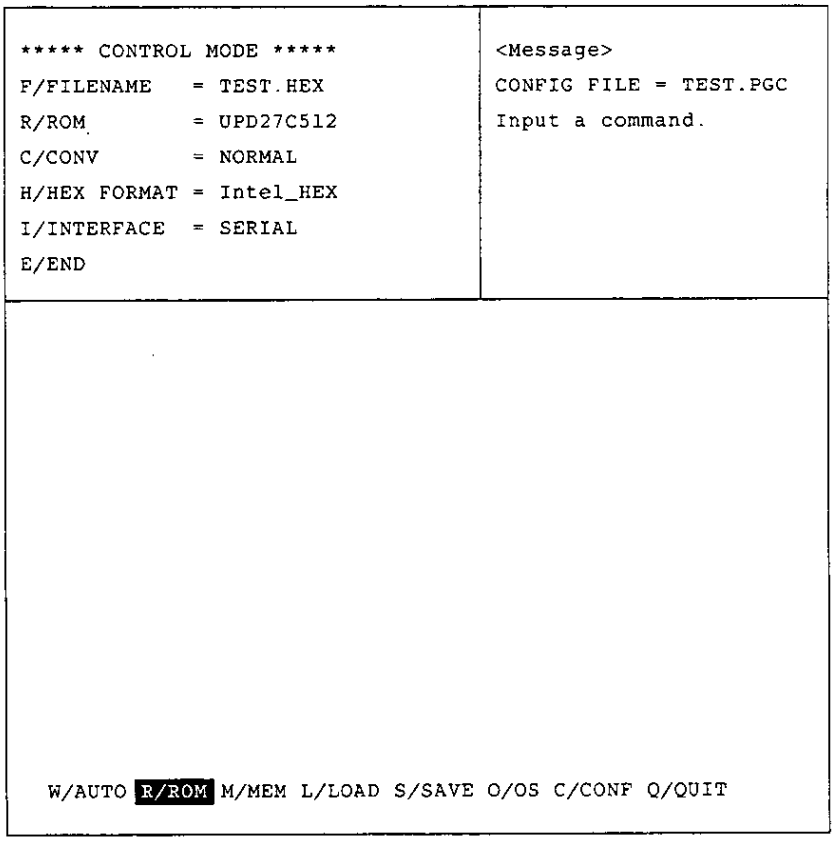
```
***** CONTROL MODE *****          | <Message>
F/FILENAME    = TEST.HEX          | CONFIG FILE = TEST.PGC
R/ROM         = UPD27C512         | Input a command.
C/CONV        = NORMAL            |
H/HEX FORMAT = Intel_HEX          |
I/INTERFACE   = SERIAL            |
E/END                             |

RW/WRITE (PG_BUFFER TO ROM)
ROM START ADDRESS        = 00000
ROM END ADDRESS          = 01FFF
PG_BUFFER START ADDRESS = 00000
CONV                     = NN BE BO WE WO 00 01 02 03

Now, data writing!
Data complete
Check sum: 78D6

  W/AUTO R/ROM M/MEM L/LOAD S/SAVE O/OS C/CONF Q/QUIT
```

→ Check sum display

A.6 PG Buffer → Silicon Signature Non-Compatible Product[Note] Write

Note Refer to the PG-1500 User's Manual for the silicon signature non-compatible products.

<1> Select R/ROM.



<2> Select S/SELECT ROM.

```
***** CONTROL MODE *****          <Message>
F/FILENAME    = TEST.HEX         CONFIG FILE = TEST.PGC
R/ROM         = UPD27C512
C/CONV        = NORMAL
H/HEX FORMAT  = Intel_HEX
I/INTERFACE   = SERIAL
E/END

R/DATA READ
S/SELECT ROM
V/VERIFY (MASTER ROM TO PG_BUFFER)
W/WRITE (PG_BUFFER TO ROM)
Z/ZERO CHECK (BLANK CHECK)

  W/AUTO R/ROM M/MEM L/LOAD S/SAVE O/OS C/CONF Q/QUIT
```

<3> Select C/CODE SELECT.

```
***** CONTROL MODE *****          <Message>
F/FILENAME    = TEST.HEX         CONFIG FILE = TEST.PGC
R/ROM         = UPD27C512        Set ROM.
C/CONV        = NORMAL
H/HEX FORMAT  = Intel_HEX
I/INTERFACE   = SERIAL
E/END

RS/SELECT ROM
R/SIGNATURE READ
A/SIGNATURE AUTO READ
C/CODE SELECT

ROM SELECT
 10C4=uPD27256A   (VPP=12.5V) (F/N)  1004=uPD27256   (VPP=21V) (N)
 1064=uPD27C256A  (VPP=12.5V) (F/N)  10A4=uPD27C256  (VPP=21V) (N)
 1025=uPD27C512   (VPP=12.5V) (F/N)  1086=uPD27C1000 (VPP=12.5V) (N)
 1016=uPD27C1000A (VPP=12.5V) (P/N)  1046=uPD27C1001 (VPP=12.5V) (N)
 10D6=uPD27C1001A (VPP=12.5V) (P/N)  1026=uPD27C1024 (VPP=12.5V) (N)
 10B6=uPD27C1024A (VPP=12.5V) (P/N)  10C7=uPD27C2001 (VPP=12.5V) (P/N)
 10C8=uPD27C4001  (VPP=12.5V) (N)    10A8=uPD27C4096 (VPP=12.5V) (N)
Please input code No.=
  W/AUTO R/ROM M/MEM L/LOAD S/SAVE O/OS C/CONF Q/QUIT
```

→ ROM code number list is displayed.

<4> Input code number of corresponding general-purpose PROM.

<5> Select normal write (NORMAL).

```
***** CONTROL MODE *****          <Message>
F/FILENAME    = TEST.HEX         CONFIG FILE = TEST.PGC
R/ROM         = UPD27C512        Set ROM.
C/CONV        = NORMAL
H/HEX FORMAT  = Intel_HEX
I/INTERFACE   = SERIAL
E/END

RS/SELECT ROM
R/SIGNATURE READ
A/SIGNATURE AUTO READ
C/CODE SELECT
ROM SELECT
 10C4=uPD27256A   (VPP=12.5V) (F/N)  1004=uPD27256   (VPP=21V) (N)
 1064=uPD27C256A  (VPP=12.5V) (F/N)  10A4=uPD27C256  (VPP=21V) (N)
 1025=uPD27C512   (VPP=12.5V) (F/N)  1086=uPD27C1000 (VPP=12.5V) (N)
 1016=uPD27C1000A (VPP=12.5V) (P/N)  1046=uPD27C1001 (VPP=12.5V) (N)
 10D6=uPD27C1001A (VPP=12.5V) (P/N)  1026=uPD27C1024 (VPP=12.5V) (N)
 10B6=uPD27C1024A (VPP=12.5V) (P/N)  10C7=uPD27C2001 (VPP=12.5V) (P/N)
 10C8=uPD27C4001  (VPP=12.5V) (N)    10A8=uPD27C4096 (VPP=12.5V) (N)
Please input code No.=1064 ↵
Please input program mode (Page/Fast/Normal)=N
  W/AUTO R/ROM M/MEM L/LOAD S/SAVE O/OS C/CONF Q/QUIT
```

<6> SELECT R/ROM.

```
***** CONTROL MODE *****          <Message>
F/FILENAME    = TEST.HEX         CONFIG FILE = TEST.PGC
R/ROM         = UPD27C512        Input a command.
C/CONV        = NORMAL
H/HEX FORMAT  = Intel_HEX
I/INTERFACE   = SERIAL
E/END

  W/AUTO R/ROM M/MEM L/LOAD S/SAVE O/OS C/CONF Q/QUIT
```

<7> Select Z/ZERO CHECK (BLANK CHECK).

```
***** CONTROL MODE *****          <Message>
F/FILENAME    = TEST.HEX         CONFIG FILE = TEST.PGC
R/ROM         = UPD27C512
C/CONV        = NORMAL
H/HEX FORMAT  = Intel_HEX
I/INTERFACE   = SERIAL
E/END

R/DATA READ
S/SELECT ROM
V/VERIFY (MASTER ROM TO PG_BUFFER)
W/WRITE (PG_BUFFER TO ROM)
Z/ZERO CHECK (BLANK CHECK)

  W/AUTO R/ROM M/MEM L/LOAD S/SAVE O/OS C/CONF Q/QUIT
```

→ If the ROM contents have been erased, "ROM erase OK!" is displayed.

```
***** CONTROL MODE *****          <Message>
F/FILENAME    = TEST.HEX         CONFIG FILE = TEST.PGC
R/ROM         = UPD27C512        Input a command.
C/CONV        = NORMAL
H/HEX FORMAT  = Intel_HEX
I/INTERFACE   = SERIAL
E/END

RZ/ZERO CHECK (BLANK CHECK)

ROM erase OK!

  W/AUTO R/ROM M/MEM L/LOAD S/SAVE O/OS C/CONF Q/QUIT
```

<8> Select R/ROM.

```
***** CONTROL MODE *****          <Message>
F/FILENAME    = TEST.HEX         CONFIG FILE = TEST.PGC
R/ROM         = UPD27C512        Input a command.
C/CONV        = NORMAL
H/HEX FORMAT  = Intel_HEX
I/INTERFACE   = SERIAL
E/END

  W/AUTO R/ROM M/MEM L/LOAD S/SAVE O/OS C/CONF Q/QUIT
```

<9> Select W/WRITE (PG_BUFFER TO ROM).

```
***** CONTROL MODE *****          <Message>
F/FILENAME    = TEST.HEX         CONFIG FILE = TEST.PGC
R/ROM         = UPD27C512        Set ROM.
C/CONV        = NORMAL
H/HEX FORMAT  = Intel_HEX
I/INTERFACE   = SERIAL
E/END

R/DATA READ
S/SELECT ROM
V/VERIFY (MASTER ROM TO PG_BUFFER)
W/WRITE (PG_BUFFER TO ROM)
Z/ZERO CHECK (BLANK CHECK)

  W/AUTO R/ROM M/MEM L/LOAD S/SAVE O/OS C/CONF Q/QUIT
```

<10> Select "START" and press the ↵ key if parameters are to be changed.

```
***** CONTROL MODE *****          | <Message>
F/FILENAME    = TEST.HEX          | CONFIG FILE = TEST.PGC
R/ROM         = UPD27C512         |
C/CONV        = NORMAL            |
H/HEX FORMAT  = Intel_HEX         |
I/INTERFACE   = SERIAL            |
E/END                             |

RW/WRITE (PG_BUFFER TO ROM)
ROM START ADDRESS        = 00000
ROM END ADDRESS          = 07FFF
PG_BUFFER START ADDRESS  = 00000
CONV                     = NN BE BO WE WO 00 01 02 03
START

  W/AUTO R/ROM M/MEM L/LOAD S/SAVE O/OS C/CONF Q/QUIT
```

<11> Writing complete

```
***** CONTROL MODE *****          | <Message>
F/FILENAME    = TEST.HEX          | CONFIG FILE = TEST.PGC
R/ROM         = UPD27C512         | Input a command.
C/CONV        = NORMAL            |
H/HEX FORMAT  = Intel_HEX         |
I/INTERFACE   = SERIAL            |
E/END                             |

RW/WRITE (PG_BUFFER TO ROM)
ROM START ADDRESS        = 00000
ROM END ADDRESS          = 07FFF
PG_BUFFER START ADDRESS  = 00000
CONV                     = NN BE BO WE WO 00 01 02 03

Now, data writing!
Data complete
Check sum: 78D6

  W/AUTO R/ROM M/MEM L/LOAD S/SAVE O/OS C/CONF Q/QUIT
```

→ Check sum display

A.7 Verification of Contents of PG Buffer and PROM

<1> Select R/ROM.

```
***** CONTROL MODE *****          <Message>
F/FILENAME    = TEST.HEX         CONFIG FILE = TEST.PGC
R/ROM         = UPD27C512        Input a command.
C/CONV        = NORMAL
H/HEX FORMAT  = Intel_HEX
I/INTERFACE   = SERIAL
E/END

W/AUTO R/ROM M/MEM L/LOAD S/SAVE O/OS C/CONF Q/QUIT
```

<2> Select S/SELECT ROM.

```
***** CONTROL MODE *****          <Message>
F/FILENAME    = TEST.HEX         CONFIG FILE = TEST.PGC
R/ROM         = UPD27C512
C/CONV        = NORMAL
H/HEX FORMAT  = Intel_HEX
I/INTERFACE   = SERIAL
E/END

R/DATA READ
S/SELECT ROM
V/VERIFY (MASTER ROM TO PG_BUFFER)
W/WRITE (PG_BUFFER TO ROM)
Z/ZERO CHECK (BLANK CHECK)

  W/AUTO R/ROM M/MEM L/LOAD S/SAVE O/OS C/CONF Q/QUIT
```

<3> Select R/SIGNATURE READ.

```
***** CONTROL MODE *****          <Message>
F/FILENAME    = TEST.HEX         CONFIG FILE = TEST.PGC
R/ROM         = UPD27C512        Set ROM.
C/CONV        = NORMAL           Input a command.
H/HEX FORMAT  = Intel_HEX
I/INTERFACE   = SERIAL
E/END

RS/SELECT ROM
R/SIGNATURE READ
A/SIGNATURE AUTO READ
C/CODE SELECT

 Your setting ROM is uPD27C256A

  W/AUTO R/ROM M/MEM L/LOAD S/SAVE O/OS C/CONF Q/QUIT
```

→ The name of the set PROM is displayed.

<4> Select R/ROM.

```
***** CONTROL MODE *****
F/FILENAME    = TEST.HEX
R/ROM         = UPD27C512
C/CONV        - NORMAL
H/HEX FORMAT  = Intel_HEX
I/INTERFACE   = SERIAL
E/END
```

```
<Message>
CONFIG FILE = TEST.PGC
Input a command.
```

```
W/AUTO R/ROM M/MEM L/LOAD S/SAVE O/OS C/CONF Q/QUIT
```

<5> Select V/VERIFY (MASTER ROM TO PG_BUFFER).

```
***** CONTROL MODE *****
F/FILENAME    = TEST.HEX
R/ROM         = UPD27C512
C/CONV        = NORMAL
H/HEX FORMAT  = Intel_HEX
I/INTERFACE   = SERIAL
E/END
```

```
<Message>
CONFIG FILE = TEST.PGC
```

```
R/DATA READ
S/SELECT ROM
V/VERIFY (MASTER ROM TO PG_BUFFER)
W/WRITE (PG_BUFFER TO ROM)
Z/ZERO CHECK (BLANK CHECK)
```

```
W/AUTO R/ROM M/MEM L/LOAD S/SAVE O/OS C/CONF Q/QUIT
```

<6> Select "START" and press the ↵ key if parameters are to be changed.

```
***** CONTROL MODE *****          <Message>
F/FILENAME    = TEST.HEX         CONFIG FILE = TEST.PGC
R/ROM         = UPD27C512
C/CONV        = NORMAL
H/HEX FORMAT  = Intel_HEX
I/INTERFACE   = SERIAL
E/END

RV/VERIFY (MASTER ROM TO PG_BUFFER)
ROM START ADDRESS        = 00000
ROM END ADDRESS          = 07FFF
PG_BUFFER START ADDRESS  = 00000
CONV                     = NN BE BO WE WO 00 01 02 03
START

  W/AUTO R/ROM M/MEM L/LOAD S/SAVE O/OS C/CONF Q/QUIT
```

<7> Verify complete

```
***** CONTROL MODE *****          <Message>
F/FILENAME    = TEST.HEX         CONFIG FILE = TEST.PGC
R/ROM         = UPD27C512        Input a command.
C/CONV        = NORMAL
H/HEX FORMAT  = Intel_HEX
I/INTERFACE   = SERIAL
E/END

RV/VERIFY (MASTER ROM TO PG_BUFFER)
ROM START ADDRESS        = 00000
ROM END ADDRESS          = 07FFF
PG_BUFFER START ADDRESS  = 00000
CONV                     = NN BE BO WE WO 00 01 02 03

Now, data reading!
Data complete
Check sum: 78D6

  W/AUTO R/ROM M/MEM L/LOAD S/SAVE O/OS C/CONF Q/QUIT
```

→ Check sum display

A.8 PG Buffer → File Data Save

<1> Select S/SAVE.

```
***** CONTROL MODE *****          <Message>
F/FILENAME    = TEST.HEX         CONFIG FILE = TEST.PGC
R/ROM         = UPD27C512        Input a command.
C/CONV        = NORMAL
H/HEX FORMAT  = Intel_HEX
I/INTERFACE   = SERIAL
E/END

  W/AUTO R/ROM M/MEM L/LOAD S/SAVE O/OS C/CONF Q/QUIT
```

<2> Select "START" and press the ↵ key if parameters are to be changed.

```
***** CONTROL MODE *****          | <Message>
F/FILENAME    = TEST.HEX          | CONFIG FILE = TEST.PGC
R/ROM         = UPD27C512         |
C/CONV        = NORMAL            |
H/HEX FORMAT  = Intel_HEX         |
I/INTERFACE   = SERIAL            |
E/END                             |

FILENAME = TEST2.HEX

HEX FORMAT               = Intel_HEX  Motorola_S  Tektronix_HEX
PG_BUFFER START ADDRESS  = 00000
PG_BUFFER END ADDRESS    = 7FFFF
START

  W/AUTO R/ROM M/MEM L/LOAD S/SAVE O/OS C/CONF Q/QUIT
```

<3> Save complete

```
***** CONTROL MODE *****          | <Message>
F/FILENAME    = TEST.HEX          | CONFIG FILE = TEST.PGC
R/ROM         = UPD27C512         |
C/CONV        = NORMAL            |
H/HEX FORMAT  = Intel_HEX         |
I/INTERFACE   = SERIAL            |
E/END                             |

FILENAME = TEST2.HEX

HEX FORMAT               = Intel_HEX  Motorola_S  Tektronix_HEX
PG_BUFFER START ADDRESS  = 00000
PG_BUFFER END ADDRESS    = 7FFFF

Save Complete

  W/AUTO R/ROM M/MEM L/LOAD S/SAVE O/OS C/CONF Q/QUIT
```

APPENDIX B REVISION HISTORY ★

The following table shows the revision history of this manual. "Location" indicates the chapters of each edition.

Edition	Revision from Previous Edition	Location
3rd	Addition of μPD27C2001, 27C4001, and 27C4096 as applicable PROMs	Throughout
	Correction of messages displayed on screen	
	Correction of table listing models of PC-9800 series applicable to PG1500C	CHAPTER 1 GENERAL
	Correction of description on start-up procedure	CHAPTER 3 START-UP
	Addition of description on creating configuration file	
	Addition of Note to table of contents of configuration file and default values	
	Addition of description on configuration area in control mode	CHAPTER 4 CONTROL MODE
	Addition and correction of description on auto write (W) command	
	Addition of Caution to figure of execution screen of RS command	
	Addition of table of functions used to describe commands	CHAPTER 6 TERMINAL MODE
	Addition of Caution to table of subcommands and symbols of RS command	
	Correction of description of - With 04A board - in RS command execution example 1	
	Correction of Error Messages and addition of Action	CHAPTER 7 ERROR MESSAGES
4th	Deletion of description on PC DOS and PC/AT.	Throughout
	Correction of table listing models of PC-9800 series applicable to PG1500C	CHAPTER 1 GENERAL
	Upgrading version of supported MS-DOS	
	Change of default value from 0 to 00000 in tables listing parameters and default values of R and M commands. Addition of Remark on digits for address input	CHAPTER 4 CONTROL MODE
	Change of ROM to μPD27C4096 in example of execution screen in auto mode	CHAPTER 5 AUTO MODE
	Correction of Remark on digits for address input in table of symbols used for description of commands in terminal mode	CHAPTER 6 TERMINAL MODE

[MEMO]