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SEGA OF AMERICA, INC.  
Consumer Products Division

# Saturn Introduction Manual

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## Introduction

### Purpose of this Manual

This binder provides information such as using the boot up method, using libraries, making programs, making CDs, etc., that is required to develop application software.

### Who Should Use this Manual

This binder is intended for use by programmers who are developing application software.

Release 1 applied only to SATURN TARGET BIGBOX, while release 2 applied only to SATURN TARGET MODEL M. When creating the final product, replace the above with release 3 (final release) because some areas will be different in the final version.

### Other

Updates are provided with the software to provide the user the most up-to-date, accurate information, manual corrections or when more details are added. Always read the updates provided with the software. The updates are located in the "¥SATURN¥xxxxx¥MAN¥" directory.

We have tried to provide a manual that contains the information programmers need in a concise, easy-to-use format. We would appreciate any comments or suggestions that you may have. Please share your opinions with us.

## Configuration of this Manual

### 1. A PROGRAMMER'S GUIDE

- Software System Guide  
Explains the basic knowledge needed to create a program that runs a finished game or development target box.
- Software Library Guide  
To speed up the development of application programs, those programs with high utilization value have been gathered into libraries. The operating environment and methods of use are explained. Software libraries contain functions required to develop games. Of course, an independent program can be used in place of this one. Most of the software libraries release the source code. Programming for this game hardware can be learned faster by using this code. The code can also be customized to make the library fit the characteristics of the game being developed.
- CD Tool Guide  
Explains the operating environment for this tool, which is matched to the debug phase used to debug a CD without actually having to make one.

### 2. A SOFTWARE SYSTEM GUIDE

- BOOT ROM User's Manual  
Explains BOOT ROM functions and application boot up configurations.
- DISC Format Specifications  
Explains specifications that must be followed when creating a game CD.

### 3. A SOFTWARE LIBRARY GUIDE

- System Library User's Guide
  - System Program
  - SMPC I/F
  - CD Communication I/FThese libraries must be used whenever the corresponding hardware is used.
- Program Library User's Guide 1 CD Library
  - File System Library
  - Stream System Library
  - MPEG LibraryBased on the purpose, the CD library can differentiate between intelligent functions and primitive functions. Intelligent functions are designed for easy use not only in games but various multimedia software as well.



- Program Library User's Guide 2 Graphic Related Library

- VDP1 Library
- VDP2 Library
- Numeric Calculation Library
- DSP I/F Library

In addition to the basic 2D scroll and sprite control functions, numeric calculations used in 3D object control functions and 3D high-speed processing programs used in DSP are provided for each level.

- Program Library User's Guide 3

- Sound I/F Library
- DMA Library
- Cache Library
- Interrupt Control Library
- Memory Control Library
- Timer Library
- Debug Support Library
- Compression/Expansion Library
- DLL Library

We have included many libraries that are helpful when developing applications. All of these have the source code attached for free customization and use.

- Sample Program User's Guide

- Sample Game Program

A collection of actual sample programs are supplied to enable the programmer to learn game programming faster. These all come with source code to change or use while creating games.

- Sample Data

Samples of data types that are helpful in creating games are provided. Of course, these can be freely customized and used in application software.

#### 4. A CD TOOL GUIDE

- Simple CD Simulator

Enables files to be read from memory or a hard disk rather than from a CD and debugged.

- Virtual CD System

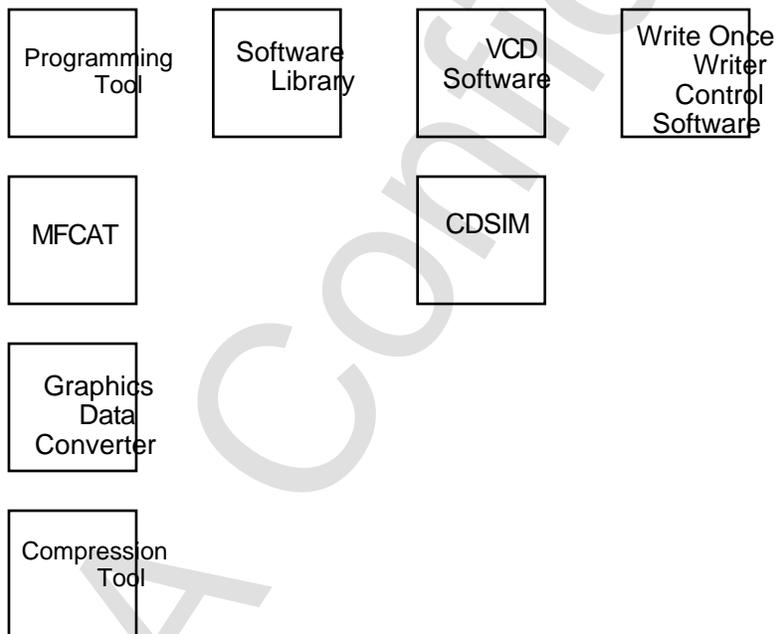
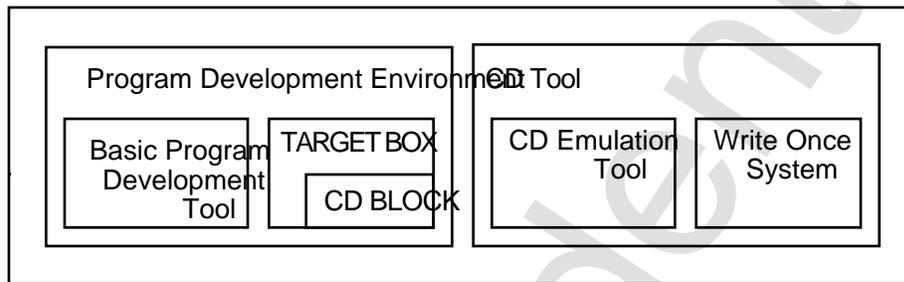
Allows sector data to be read from the virtual CD the same as reading sector data from an actual CD drive, without actually creating a CD.

- Write Once System

Used to write the CD images tested in virtual CD to a write-once CD.

# Development Environment

## Programmer Development Environment



## Tool Configuration

- Programming Tools  
Hitachi C compiler, assembler, linker, debugger, etc.; and the various other tools.
- CD Tools/Simple CD Simulator/SIMM System  
MFCAT
- CD Tools/Simple CD Simulator/SCSI System  
CDSIM
- CD Tools/CD Emulation System  
VCD Software (VCDEMU, VCDBUILD, ...)
- CD Tools/Write Once System  
Write-once writer control software (scheduled to be supported from release 3).
- Software Tools/Graphic Data Converter System  
DXFTO3DT
- Software Tool/ Compression Tool  
CMPRUN
- Software Library  
System library, program library, sample program.

## Installation

### Hardware Setup

- <PC Version>

Start up the PC and insert the PC version floppy into the floppy drive. Always read the "README.DOC" that is contained in the FD root directory first. Installation instructions are contained in this file.

- <SUN Version>

Prepare the tape device.

- <HP Version>

Prepare the DAT.

### Media

Release 2 is supplied with the following media.

---

PC Version	FD
SUN Version	8mm Tape
HP Version	DAT

---

### How to Install

- <PC Version>

In the PC version, installation can be performed per every library and tool.

- Software Library

Insert the floppy into the disk drive and execute the INSTALL command. Installation will occur in the current directory. All libraries are installed into the current directory "SATURN".

If there is no "SATURN" directory, one must be created.

It should appear as follows (if the floppy drive is A drive and the destination drive is C drive).

---

```
C:¥USR>A: INSTALL [RET]
```

---

[C:¥USR¥SATURN¥ ....] directory is created.



- CD Tools

Insert the floppy into the disk drive and execute the [install] command. It will install into the current directory. In the example below, the floppy drive is A drive and the destination drive is C.

---

```
C:¥BIN>a:install[RET]
```

---

- If installing the virtual CD, indicate the option [-vcd].

---

```
C:¥BIN>a:install -vcd[RET]
```

---

- When installing DXFTO3DT, the DXFTO3DT becomes a self-extracting compressed file. Therefore, change the current directory to the install destination and execute.

---

```
C:¥BIN>a:¥saturn¥segabin¥dxfto3dt[RET]
```

---

[DXFTO3DT¥] creates the directory. (Refer to the [README.DOC] directory configuration.)

- <SUN Version>

Libraries and tools are installed all at once.

1. Change the current directory to the install directory.
2. If the [tar xvf8mm tape special file] is used, everything from the [SATURN] directory will be created.

(Example)

---

```
tar xvf/dev/nrst[RET]
```

---

- <HP Version>

Libraries and tools are installed all at once.

1. Insert the cartridge tape into the device.
2. Move the current directory to the directory you want to install into.  
(Example: /usr/bin)
3. Execute the following command.

---

```
tar xvf/dev/update.src[RET]
```

---

4. After loading from tape, items under the [SATURN] directory are created.

**Note:** The identifier of each version of a file is designated with the time stamp. Please do not change the time stamp. Always read all of the [README.DOC] and [¥MAN¥] directory update documents.