MiDAS Family

Application Note #015 (AN015-V20)

AN

[MiDAS 2.0/2.1/AFCore1.0/RoboCore1.0] How to Use ISP with GenICE52

V2.0

January 2006

Contents

PART I : How to Use ISP (In-System Programming)

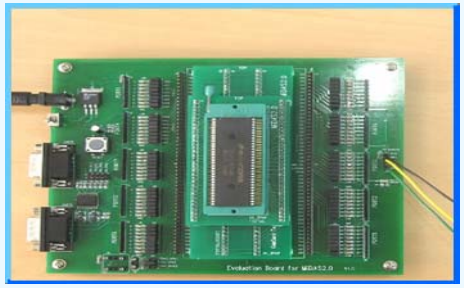
- Procedure

1. Procedure (1 of 6)

1. Set up the GenICE52 system, target system board and PC.
   1) ROM Writer Program on PC Host

[ROM Writer Program on PC Host]

[GenICE52 system]



[Target system board]

2. Set up Accessories
   1) Serial cable
   2) ISP connector
   3) Power adaptor
      (5V~9V, 3A)

Serial Cable

ISP connector

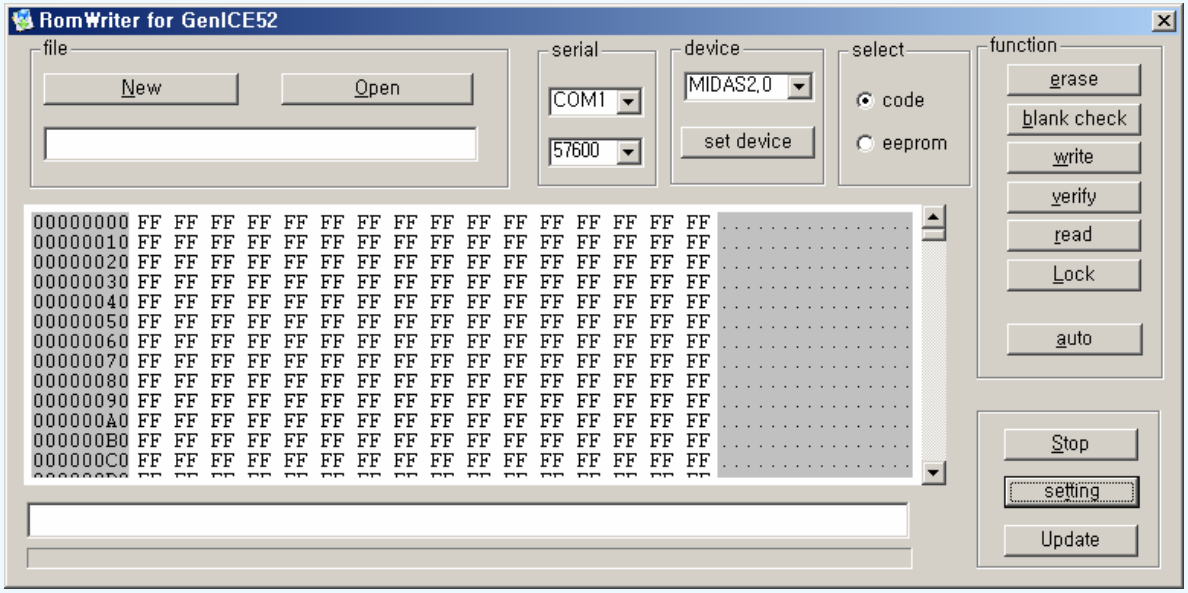
Power Adaptor
(SMPS, 5V~9V, 3Ah)

1. Procedure (2 of 6)

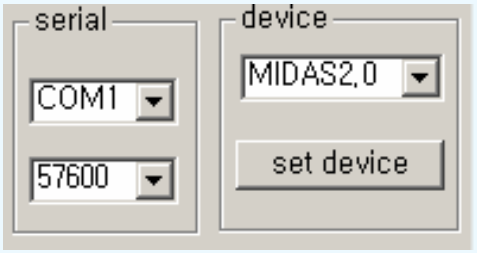
3. Connect the GenICE52 system to host PC with serial cable
   1) Check that Power Switches of the GenICE52 systems are OFF.

4. Power on the GenICE52

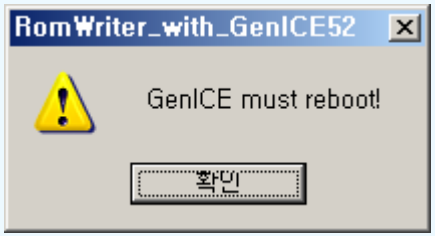
5. Run the ROM Writer

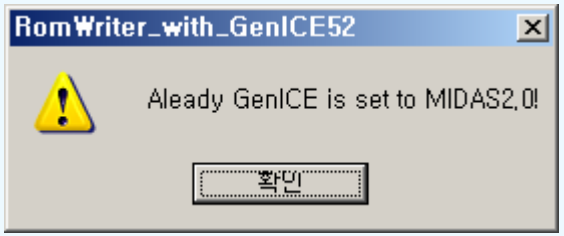


6. set serial baud rate like below, and select which device you want to use.
   serial = COM1, 57600 (default) device = what you want



1) push [device] button, and you can see the message “GenICE must reboot”. if the GenICE has already selected with what you want, it says “already is set”.





3) Reboot the GenICE52 system
4) You should change the option whenever the target device has changed.

1. Procedure (4 of 6)

7. Connect the cable of GenICE52 system to ISP connector for MCU of target system.
   1) Check that Power Switches of two systems are OFF.
   2) Connect the 4 Signals : GND, SCK, PSENB and SDA except of VDD(+3.3V)

Target System Board

GenICE52 System

Program & Debugger Cable

[ISP Pin Configuration In GenICE52/MiDAS2.0]

- V_{DD} (+3.3V)
- V_{SS} (GND)
- **SCK (P0.2)**
- **PSEN (P1.2)**
- **SDA (P2.1)**

[ISP Pin Configuration In MiDAS2.1/AFCore1.0/RoboCore1.0]

- V_{DD} (+3.3V)
- V_{SS} (GND)
- **MDS_SCL (P0.2)**
- **RESETB (P1.2)**
- **MDS_SDA (P2.1)**

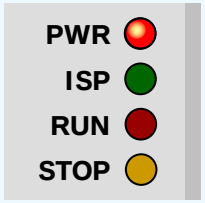
- In MiDAS2.1/AFCore1.0/RoboCore1.0 Ensure connect PSEN to RESETB pin and VDD.

※ You should not connect VDD using MiDAS 2.0

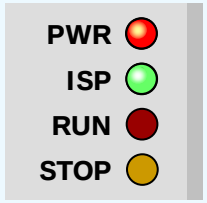
1. Procedure (5 of 6)

8-1. First, power on the systems as below. (MiDAS 2.0 Family)

1) First, power on the GenICE52 system.



2) And power on the target system board.



3) Check the ISP ready is ON.
If not ON, please retry.
Or check the connection.

※ In case of MiDAS2.0, power on the GenICE52 before the target board does.

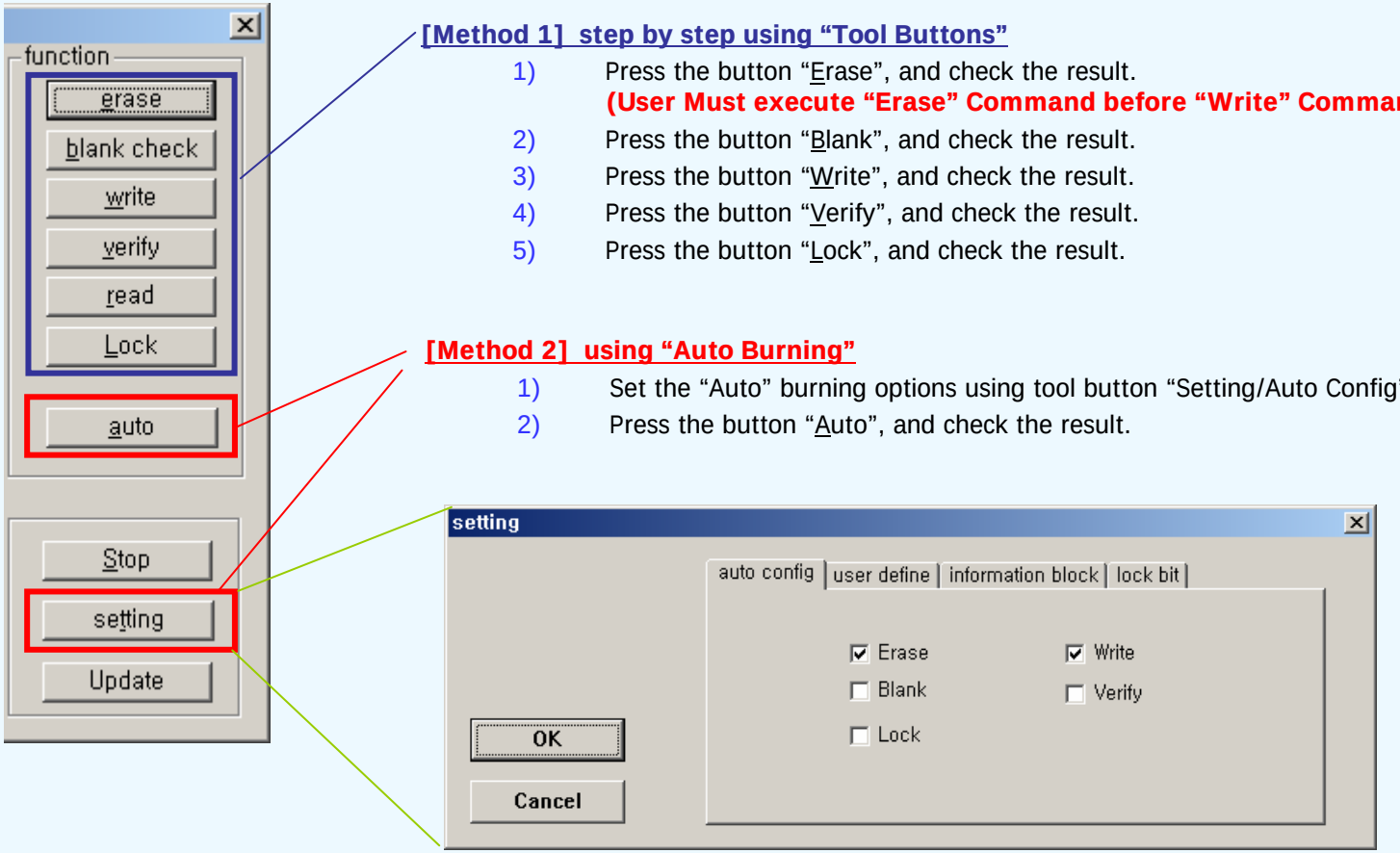
8-2. Power on the GenICE52 system. (MiDAS 2.1 / AFCore 1.0 / RoboCore 1.0)

9. Load the HEX File using tool button “Open”.

10. Select the buffer mode for Commands (Blank, Write, Verify, Read, Lock, and Auto)
    - ✓ Code (62K : 0000h ~ F7FFh)
    - ✓ EEPROM (2K : F800h ~ FFFFh)

11. User can modify the HEX code.

11. How to Program the MCU Device : Total 2 Methods



[Method 1] step by step using "Tool Buttons"

1) Press the button "Erase", and check the result.
   (User Must execute "Erase" Command before "Write" Command.)
2) Press the button "Blank", and check the result.
3) Press the button "Write", and check the result.
4) Press the button "Verify", and check the result.
5) Press the button "Lock", and check the result.

[Method 2] using "Auto Burning"

1) Set the "Auto" burning options using tool button "Setting/Auto Config".
2) Press the button "Auto", and check the result.

PART II : ROM Writer S/W

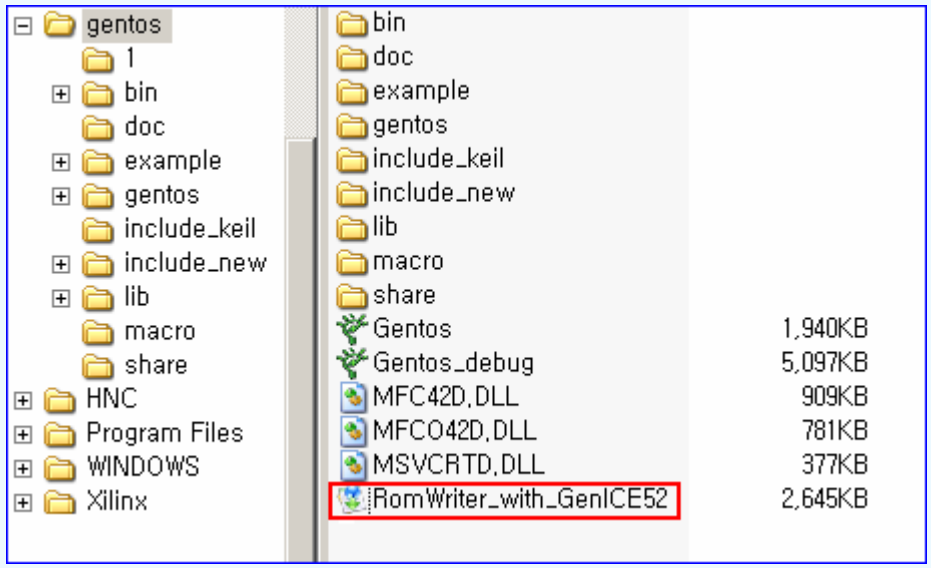
- How to Download the Program
- Introduction : Program & Toolbar

1. How to Download the Program

1. Download the program “GENTOS” from the “Support/Download Page” of CoreRiver Homepage (www.coreriver.com).

2. Install the program “GENTOS”. (Default Directory : C:\gentos)

3. ROM Writer Program
   - ✓ ROM Writer S/W : RomWriter_with_GenICE52.exe
   - ✓ ROM Writer H/W : GenICE52 MDS Equipment



Note : ROM Writer Program for MiDAS2.0 is appended to GENTOS V2.5 (or upper version).

1. How to Download the Program

4. ROM Writer S/W using GenICE52 system supports MiDAS 2.0 Family.

✓ 44-PLCC & TQFP	: GC89C591G0-PL44C / TQ44C	(MiDAS2.0 – G Type)
	GC89C591A0-PL44C / TQ44C	(MiDAS2.0 – A Type)
✓ 64-SPIDP & TQFP	: GC89C591A0-SP64C / TQ64C	(MiDAS2.0 – G Type)
✓ 80-TQFP	: GC89C591A0-TQ80C	(MiDAS2.0 – G Type)
✓ 100-TQFP	: GC89C591A0-TQ100C	(MiDAS2.0 – G Type)

5. ROM Writer S/W using GenICE52 system supports MiDAS 2.1 Family.

✓ 32-LQFP	: GC89C520A0-LQ32I

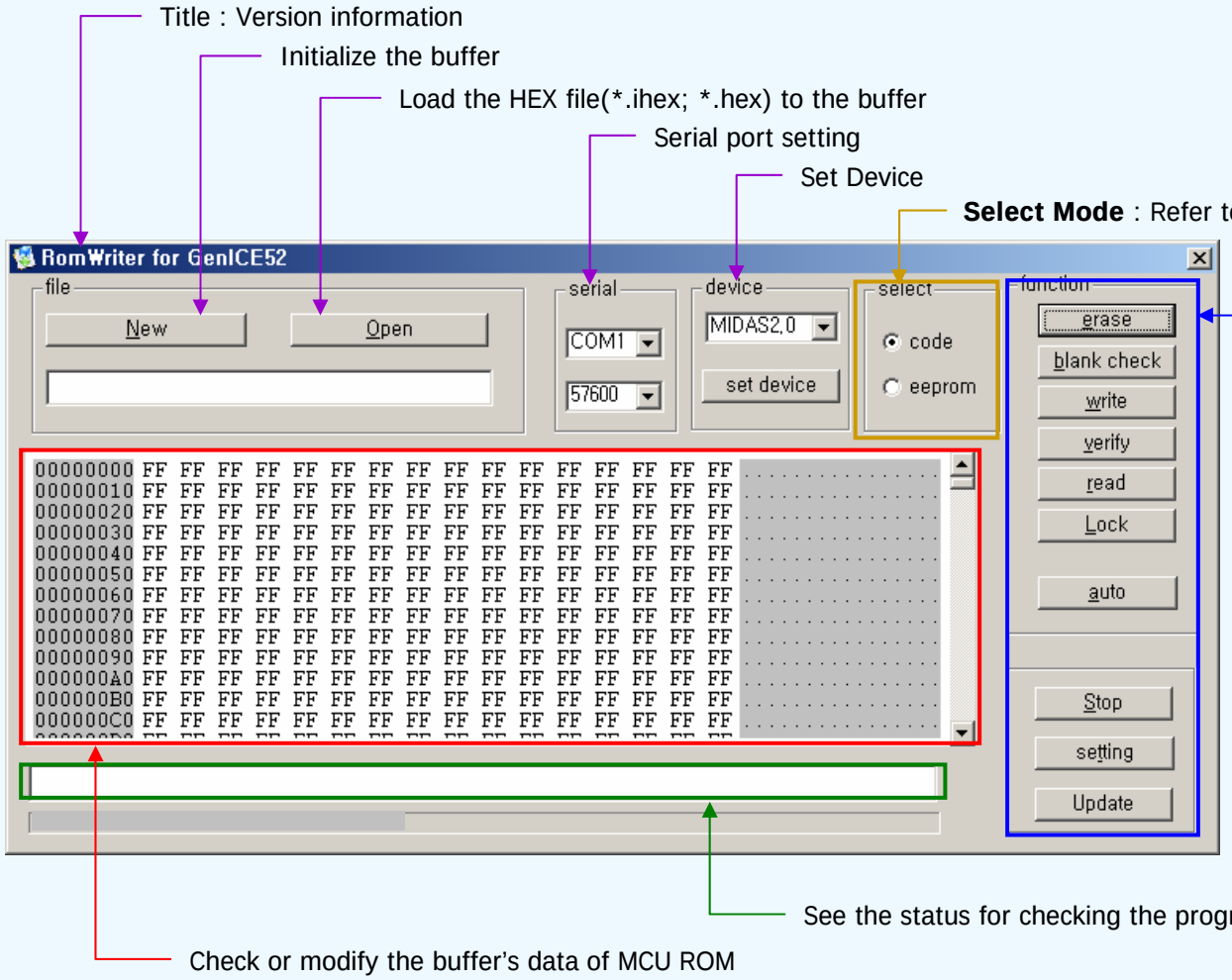
6. ROM Writer S/W using GenICE52 system supports AFCore 1.0

✓ 32-LQFP	: AFCore1.0-LQ32I

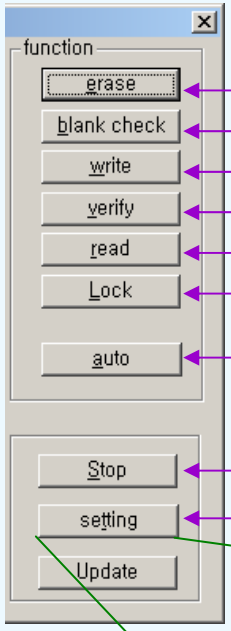
7. ROM Writer S/W using GenICE52 system supports RoboCore1.0

✓ 32-LQFP	: RoboCore1.0-LQ32I
✓ 32-MLF	: RoboCore1.0-MLF32I

2. Introduction : Program & Toolbar (1 of 3)



2. Introduction : Program & Toolbar (2 of 3)



[Function]

Erase : Erase the buffer's data (all 64KB ROM)

Blank : Check if the MCU ROM is blank status

Write : Program the MCU ROM using HEX code in the Buffer

Verify : Verify between the MCU ROM and HEX Code in the Buffer

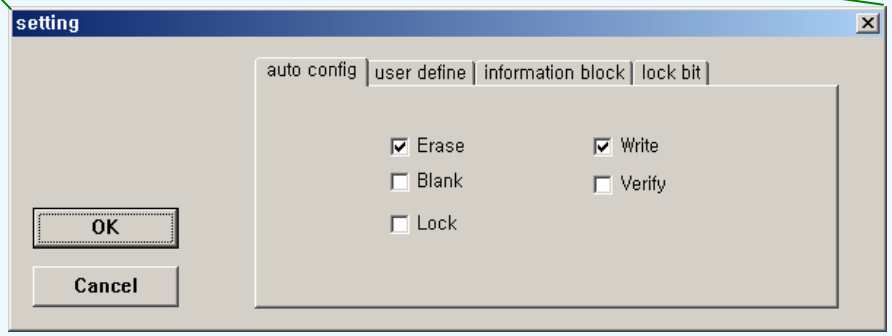
Read : Read HEX code from MCU ROM to the buffer

Lock

Auto : Auto burning according to below "Setting/Auto Config"

Stop : Stop the current progressing function

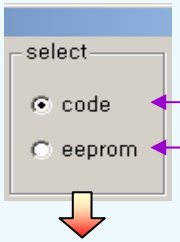
Setting : Set the "Auto Config" Option, "User Define", and "Information Block"



- User can set the wanted option for MCU
-
- Don't change the default setting of "User Define" and "Information Block" of tab menus.

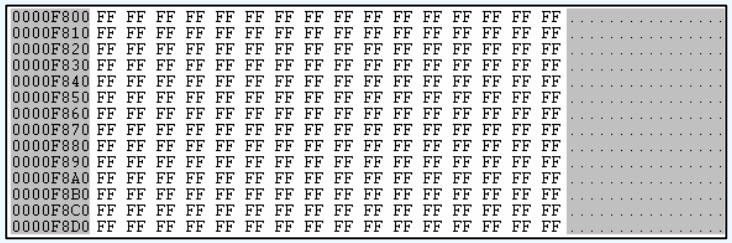
2. Introduction : Program & Toolbar (3 of 3)

[Select]



Code : Change the “Buffer Mode” to “Code Buffer” (62KB; 0000h ~ F7FFh)

EEPROM : Change the “Buffer Mode” to “EEPROM Buffer” (2KB; F800h ~ FFFFh)



- After select the buffer mode, display the selected buffer.
- User can modify the buffer’s data.

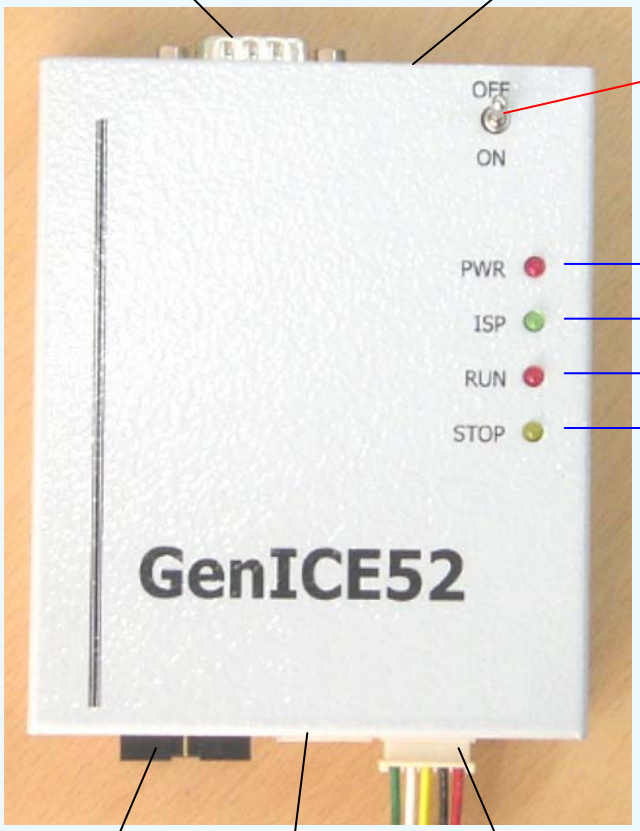
[Function with Buffer Mode]

- **The below commands only run with selected buffer mode (Code or EEPROM Buffer).**
  - Commands : Blank, Write, Verify, Read, Lock, and Auto
  - If you select the “Code buffer” and run the “write” command, ROM Writer Program writes the data from “Code Buffer” to FLASH of MCU.
  - If you select the “EEPROM buffer” and run the “write” command, ROM Writer Programs write the data from “EEPROM Buffer” to EEPROM of MCU.
- **The Erase command runs over all the program buffer (64KB; Code & EEPROM Buffer).**

PART III : GenICE52 H/W Equipment

- Introduction
- Configuration

1. Introduction



Status Display

- Power ON
- ISP Ready Check for MCU of Target System
- MDS RUN
- MDS Stop

Signal names of Cable

+3.3V
GND
SCK
PSENB
SDA

2. Configuration

- Configuration for MiDAS2.0 ISP Programming Environment

[ROM Writer Program on PC Host]

Cable Assembly

[GenICE52 System]

- GenICE52 System supports both of debugger and ROM Downloader.

- Accessories

Serial Cable
(1.5 meter)

ISP connector

Power Adaptor
(SMPS, 5~9V, 3Ah)