User Manual for DC6688SLP-USB

Document Revision 1.1 Jan, 2009

Revision History

The following table shows the revision history for this document.

Date	Document Revision	Remark	Edited By	Reviewed By
Aug, 2008	1.0	Preliminary	Kennis To	Danny Ho
Jan, 2009	1.1	Added DC6688F2SCN	Ken Yeung	Danny Ho

Contents

1 Introduction

The Objective of this document is to provide the user a quick start to evaluate DC6688SLP-USB. This board is applicable to the following:

1) DC6688F05S
2) DC6688FSA
3) DC6688FSB
4) DC6688FLB
5) DC6688FL32A
6) DC6688FLX
7) DC6688FSX
8) DC6688F2SCN

To program the DC6688 family, it involves 2 steps:

a) Download code from PC to DC6688SLP-USB refer to section 2 for detail
b) Program DC6688 family in each device refer to section 3 for detail

Section 4 describes the hardware in detail.

2 Download code from PC to DC6688SLP-USB

To download the code to DC6688SLP-USB, it involves the hardware and software setup. Setting up the hardware first, and then use software to control the download.

2.1 Hardware setup

The procedure is listed below:

a) Connect the board via a USB2.0 cable to PC as shown in diagram 2.1
b) Attach a fixed power supply to the power-connector at 'J24'. An unregulated +9V up to +12V/800mA power source can be used to supply the power of the board. The correct polarity of the power plug is shown in diagram 2.2.
c) Turn on the switch 'J25'. The LED 'D16' should be turned on to indicate the board is ready. The on/off position is shown in diagram 2.3

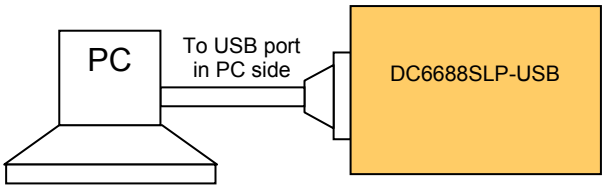

Diagram 2.1 Connection between SL Programmer board and PC

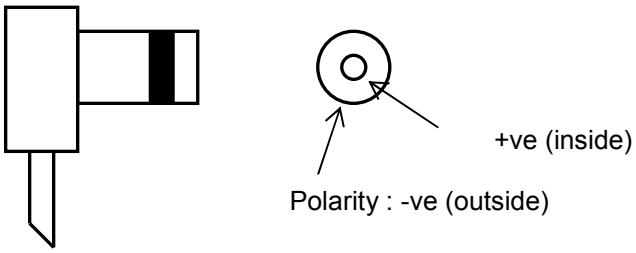

Diagram 2.2 Polarity of DC Jack

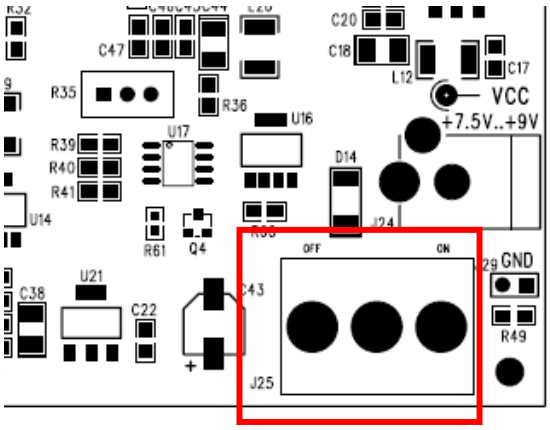

Diagram 2.3 On/Off position of power switch

2.2 Software setup

The software setup needs 'Dragonchip ISP Programmer' with version 4.7.0 or higher. Details on setup and how to use the software to download code refer to the file "Help.chm" in the package of the software. This software downloads the code to DC6688SLP-USB.

After downloading the code, press the Reset button once.

3 Programming devices

The procedure is listed below:

1. Connect the board to each device as shown in diagram 3.1. Use connector ‘J6’ to ‘J15’ to connect to each device. The pin assignment on each connector is shown in diagram 3.2.

   The SL Programmer board can support up to 10 devices. For example, if only 6 devices are needed to program, then the connectors ‘J6’ to ‘J11’ are used.

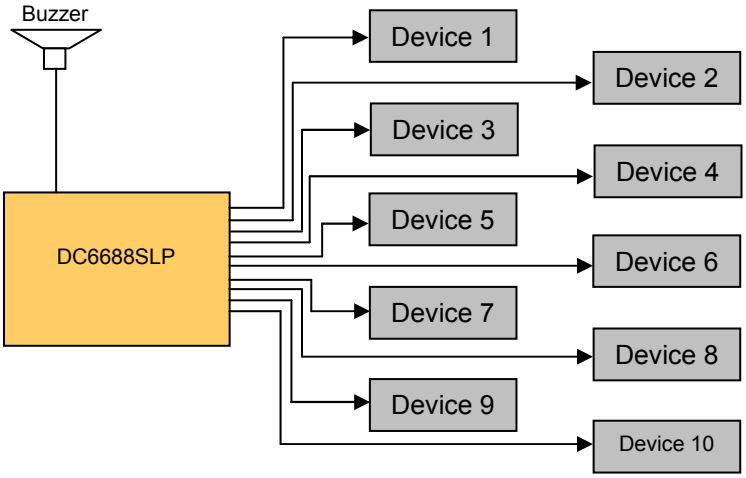

Diagram 3.1 Connection between SL Programmer board and device

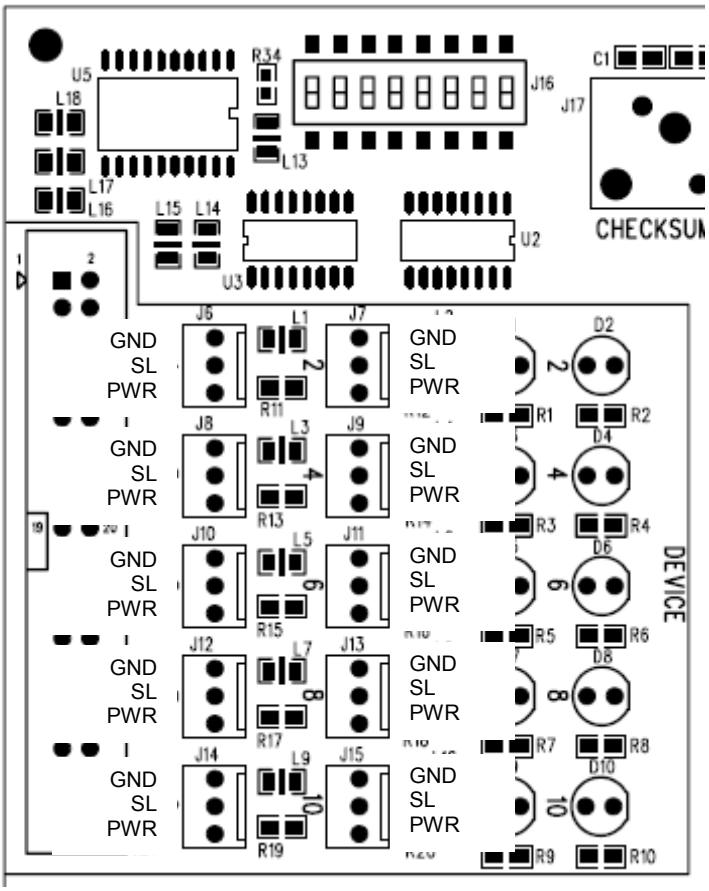

Diagram 3.2 Pin assignments for each connector ‘J1’ – ‘J10’

The devices can also be connected to 'J21' as shown in diagram 3.3. It is recommended to use IDE cable as shown in diagram 3.4.

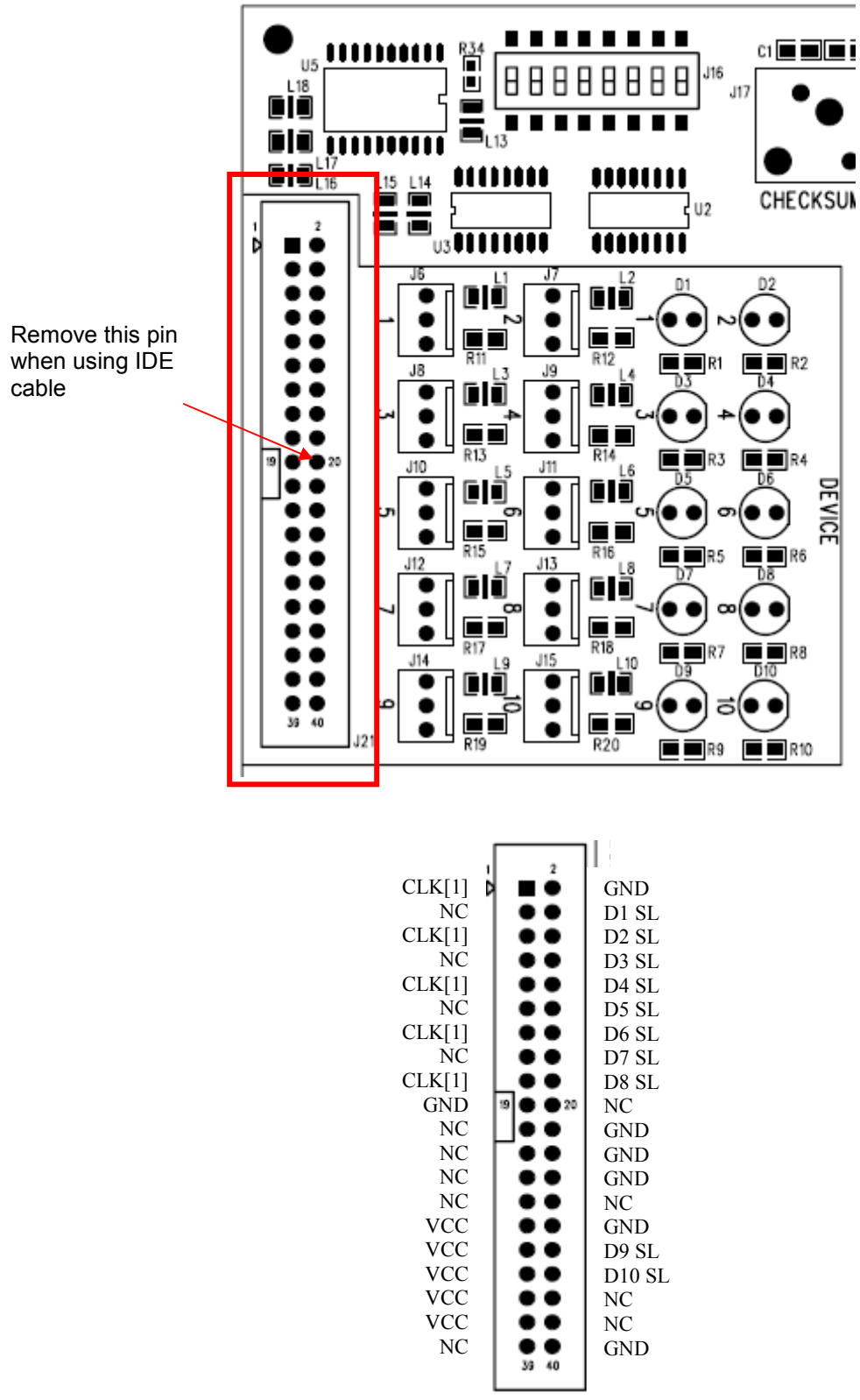

Diagram 3.3 Connection between 'J21' and devices

Remarks:

[1] CLK must connect to device's XIN pin. One pin shares to two Devices.

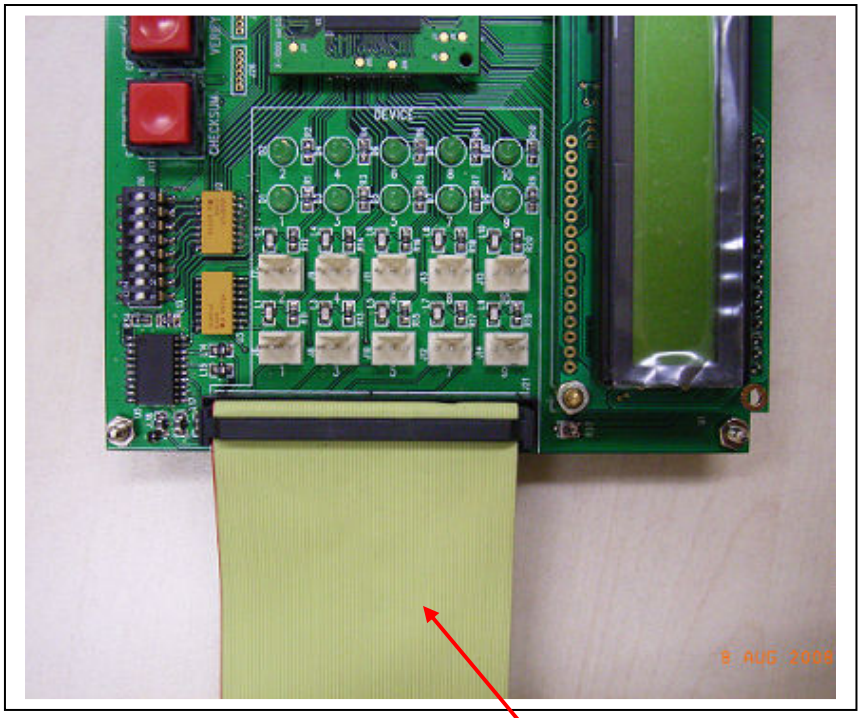

Diagram 3.4 IDE cable on the connector

2. Connect a 3V buzzer to ‘J23’ on the board. This buzzer produces continuous beep sounds if all devices succeed on programming. It provides an alternative to user a notice that one or more devices fail on programming.
3. No need to set the dip switch ‘J16’.
4. Attach a fixed power supply to the power-connector at ‘J29’. An unregulated +9V up to +12V/800mA power source can be used to supply the power of the board. The correct polarity of the power plug is shown in diagram 2.2.
5. Turn on the switch ‘J25’. The LED ‘D16’ should turn on to indicate the board is ready. The LCD panel shows up the device name in the 1st line and the model, version and checksum in the 2nd line. See diagram 4.1.
6. After displayed the information in LCD panel, press ‘Auto’ button to do programming.
7. After hearing the buzzer beeping sounds, it indicates programming finished. All the devices can unplug without switching off power.

4 Hardware description
4.1 Function keys

Keys	Description
Auto	This key performs a) write code to device, b) read back the code from device, c) verify the code[2], d) if 'Lock' option[4] is selected, lock the device preventing from reading back From step a to d, the LED corresponding to a device will flash. If the result success, the LED turns on. If the result fails, the LED turns off.
Verify	This key performs a) read back the code from device, b) verify the code[2] From step a to b, the LED corresponding to a device will flash. If the result success, the LED turns on. If the result fails, the LED turns off.
CheckSum[1]	This key performs a) read back the Model, Version, Checksum in flash memory on device 1 (i.e. connector "J6") b) display the Model, Version, Checksum on the LCD panel [3].
Reset	This key, when pressed, will reset the board to initial state without turn off/on the power. When ready, the LED 'D16' turns on.

Remarks:
[1] Only device 1 will be read for checksum.
[2] Verify the code by comparing byte by byte. If at least one byte fails, the LED will be off.
[3] The device name and Model:Version:Checksum display are shown below:
When Checksum button is pressed, the information of Device 1 will be read and ':' sign will become '_' sign.

Diagram 4.1 Device name in the 1st line and Model:Version:Checksum in the 2nd line

[4] This option is set in software ISP, no longer available on dip switch "J16".

4.2 Where does the code store?

When PC downloads the code to the DC6688SLP-USB, the code is stored to the flash memory ‘U6’ (AT29LV010A).

4.3 Maximum Power to device

DC6688SLP-USB can support up to 10 devices. The maximum current to supply by regulator ‘J25’ to the 10 devices simultaneously is 800mA.

4.4 LCD Panel

The SL Programmer Board can provide display of model, version and checksum to identify the source code.

When power on, the display will show up the checksum for the code stored at the flash memory ‘U6’ (AT29LV010A). The checksum is consistent with the one shown in the software ISP Programmer V4.3.0 or higher.

4.5 Connection to device

From J6 to J15, AWG#26 wire is recommended for power line. The wire, which the thickness is too thin, is not appropriate.

From J6 to J15, AWG#28 wire is recommended for SL line.

4.6 Variable Resistor on the board

Do not change the turns of the three variable resistors ‘R35’ ‘R37’ and ‘R51’ on the board.

5 Programming Time

5.1 DC6688FSA/FSB

The maximum programming time for each device operating at 12MHz is shown in the table below:

Program Size/kbytes	Programming time/s
2	1.32
4	1.32
8	1.58
14	2.46
16	2.46
24	3.46
30	4.2

5.2 DC6688FL32A/DC6688FLB

The maximum programming time for each device operating at 12MHz is 4.52s

5.3 DC6688F05S

The maximum programming time for each device operating at 4MHz is 3.68s

5.4 DC6688FSX

The maximum programming time for each device operating at 12MHz is shown in the table below:

Devices	Programming time/s
DC6688F62SX/SXE/SXR	8.14

5.5 DC6688FLX

The maximum programming time for each device operating at 12MHz is shown in the table below:

Devices	Programming time/s
DC6688FL64X/XE	8.4

5.6 DC6688F2SCN

The maximum programming time for each device operating at 12MHz is 1.32s

The maximum programming time for each device operating at 4MHz is 1.60s

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