



F²MC-8FX Family

MCU Board for MB95FV100D-101 MB2146-301B-E Operation Manual

Doc. # 002-07555 Rev. *A

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Preface



Thank you for purchasing the MCU board for the F²MC-8FX family MB95FV100D-101 (model number: MB2146-301B-E).

The MB2146-301B-E is a development support tool for developing and evaluating applied products based on the F²MC-8FX family of microcontrollers manufactured by Cypress.

This manual is intended for engineers who use the MB2146-301B-E (referred to below as the MCU board) to develop applied products based on Cypress's F²MC-8FX family microcontrollers. The manual describes how to handle the MCU board and its functions as well as the setting procedures.

Be sure to read this manual before using the MCU board.

■ Using the product safely

This manual contains important information required for using the MB2146-301B-E safely. Be sure to read through the manual before using the product and follow the instructions contained therein to use it correctly.

In particular, carefully read the "Caution of the products described in this document" at the beginning of this manual to understand the requirements for safe use of the product before using it.

After reading the manual, keep it handy for future reference.

■ Warranty and liability disclaimers

The specifications of the product are subject to change without notice.

In no event shall Cypress be liable for any loss or damages whatsoever directly or indirectly arising out of the use of the product.

■ Product operating environment

The operating temperature for the product ranges from 5 °C to 35 °C and the operating relative humidity from 20% to 80%. Avoid using the product in hot or humid environment and prevent condensation.

The product is a printed circuit board unit without a chassis such that all of the electronic components are exposed. Therefore, neither put anything on the product nor touch or let an electrically charged material contact a metal part of it. Once the product has been powered, try to keep those objects away from it which can short-circuit it or easily catch fire and burn. Use the product as horizontal as possible and avoid operating it at a place exposed to strong vibration, dust, or explosive gas.

Note that using the product not in the above operating environment may unexpectedly cause personal injury to the user (or another person if present near the product) or physical damage to properties around the product.

You should also keep the packaging materials used for shipping the product. They work well as they are when you transport the product again, for example, if it becomes out of order and needs to be repaired.

■ **Related manuals**

Refer to the following manuals for additional information:

- Hardware manual of the MCU used
- Data sheet of the MCU used
- “MB2146-09B-E BGM ADAPTER OPERATION MANUAL”
- Related “Header board operation manuals”
- “SOFTUNE Workbench OPERATION MANUAL”
- “SOFTUNE Workbench USER’S MANUAL”

■ **European RoHS compliance**

Products with a -E suffix on the part number are European RoHS compliant products.

■ **Notice on this document**

All information included in this document is current as of the date it is issued. Such information is subject to change without any prior notice.

Please confirm the latest relevant information with the sales representatives.

■ **Caution of the products described in this document**

The following precautions apply to the product described in this manual.



Indicates a potentially hazardous situation which, if not avoided appropriately, may result in minor or moderate injury and/or damage to the product or the equipment to which the product is connected, to software resources such as data, or to other properties.

| | |
|---------------------|---|
| Cuts, Damage | Before moving the product, be sure to turn off all the power supplies and unplug the cables. Watch your steps when carrying the product. Do not use the product in an unstable location such as a place exposed to strong vibration or a sloping surface. Doing so may let the product fall, resulting in an injury or fault. |
| Cuts | The product has some sharp-pointed or edged parts inevitably exposed, such as jumper plugs. Use meticulous care in handling the product not to get injured with such pointed parts. |
| Damage | Neither put anything on or apply shock to the product. Once the product has been powered, do not carry it. Doing either may cause a fault due to overloading or shock. |
| Damage | Since the product contains many electronic components, keep it away from direct sunlight, high temperature, and high humidity to prevent condensation. Do not use or store the product where it is exposed to much dust or a strong magnetic or electric field for an extended period of time. An adverse operating or storage environment can cause a fault. |
| Damage | Use the product within the ranges of its general specifications. Operating it outside the range of any general specification may cause a fault. |

| | |
|---------------|--|
| Damage | To prevent electrostatic breakdown, do not let your finger or an object touch any metal part of the connector. Before handling the product, touch a metal object (such as a door knob) to discharge static electricity from your body. |
| Damage | Before turning the power on, in particular, be sure to finish making all the required connections. To set up and use the product, follow the instructions given in this document. Using the product incorrectly or inappropriately may cause a fault. |
| Damage | Before plugging or unplugging any cable for this product, be sure to turn the power supply off. When unplugging a cable, remove it while holding the connector without pulling the cable itself. Pulling the cable itself or bending it may expose or disconnect the cable core, resulting in a fault. |
| Damage | Because the product has no casing, it is recommended that it be stored in the original packaging. Re-transporting the product may damage it to cause a fault. Keep the packaging materials used for shipment of the product and use them when re-transporting it. |

Contents



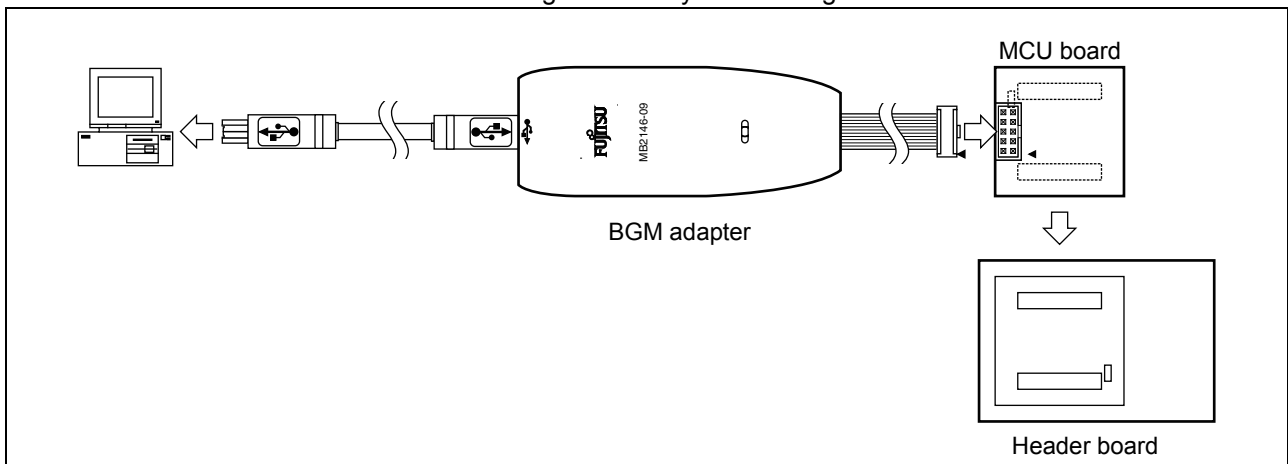
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1. Product Outline



The MB2146-301B-E is the MCU board (model number: MB2146-301B-E) mounting an evaluation MCU for the F²MC-8FX Family of Cypress 8-bit microcontrollers. The F²MC-8FX evaluation environment, consists of a combination of three products: the header board, MCU board, and BGM adapter (model number: MB2146-09B-E) as shown in [Figure 1-1](#).

Figure 1-1. System Configuration



■ Product configuration

[Table 1-1](#) lists the product configuration in the MCU board package. [Table 1-2](#) lists optional parts for the MCU board package that can be purchased separately.

Table 1-1. Product Configuration

| Name | Model number | Description |
|----------------------------------|---------------|--|
| F ² MC-8FX MCU board* | MB2146-301B-E | MCU board with built-in MB95FV100D-101 |

* : Neither the oscillator nor the capacitor is bundled with the MB2146-301B-E. Therefore, prepare them separately.

Table 1-2. Optional Parts

| Name | Model number | Description |
|----------------------------|--------------|---|
| BGM adapter* ¹ | MB2146-09B-E | ICE unit for F ² MC-8FX |
| Header board* ² | MB2146-2xx | Connector/package conversion header board |

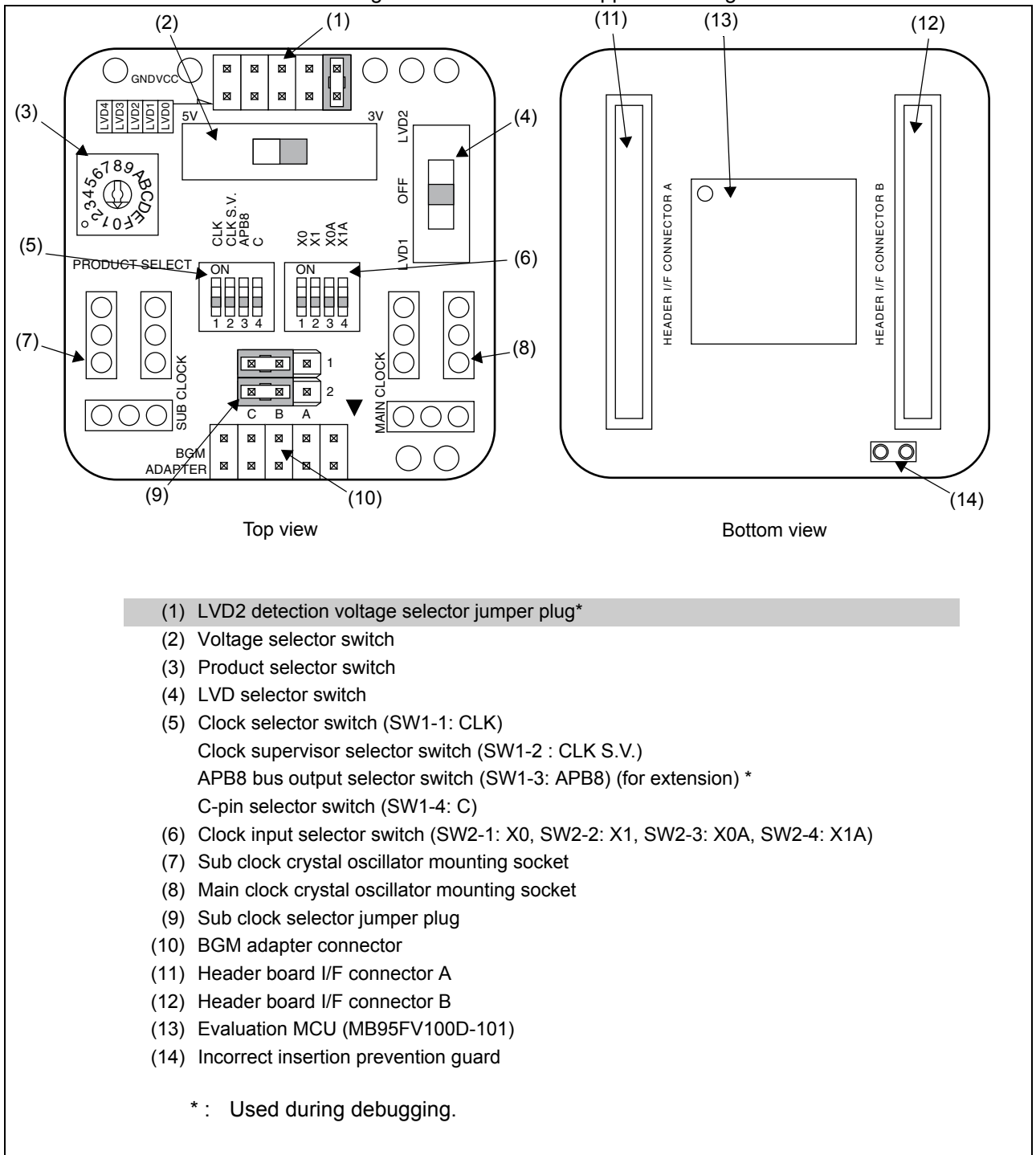
*¹To use the BGM adapter, you need additional tools such as debugger software.

*²The header board is an interface board to connect the MCU board to your user system. Choose and purchase a type of header board which is applicable to the production MCU to be used.

■ Appearance and part name

The appearance of a MCU board and the part name are shown in Figure 1-2.

Figure 1-2. MCU Board Appearance Figure



2. Checking the Delivered Product



Before using the MCU board, confirm that the following components are included in the box:

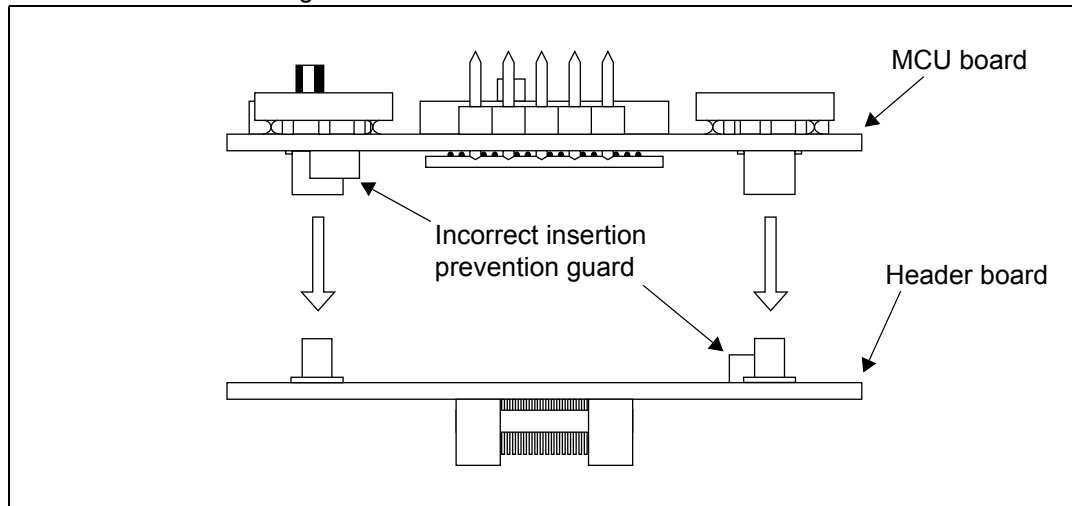
- MCU board: 1
- Operation manual (English version, this manual) : 1
- Operation manual (Japanese version) : 1

3. Connections

■ Connecting the MCU board to the header board

Align the MCU board the header board facing each other, then plug their mating connectors together. Those connectors are provided with incorrect insertion prevention guards located diagonally. Position the two boards so that the incorrect insertion prevention guards do not interfere with each other and plug the connectors together completely (see “Figure 3-1”).

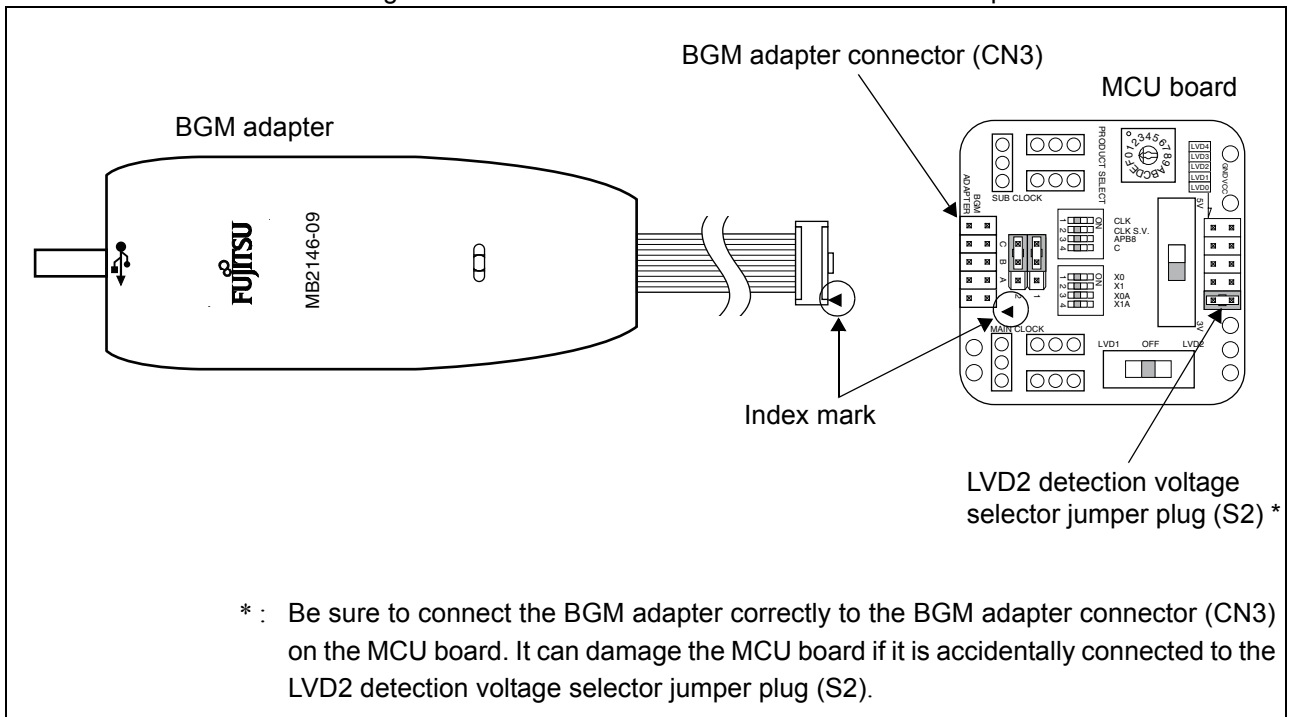
Figure 3-1. Connection of MCU Board and Header Board



■ Connecting the MCU board to the BGM adapter

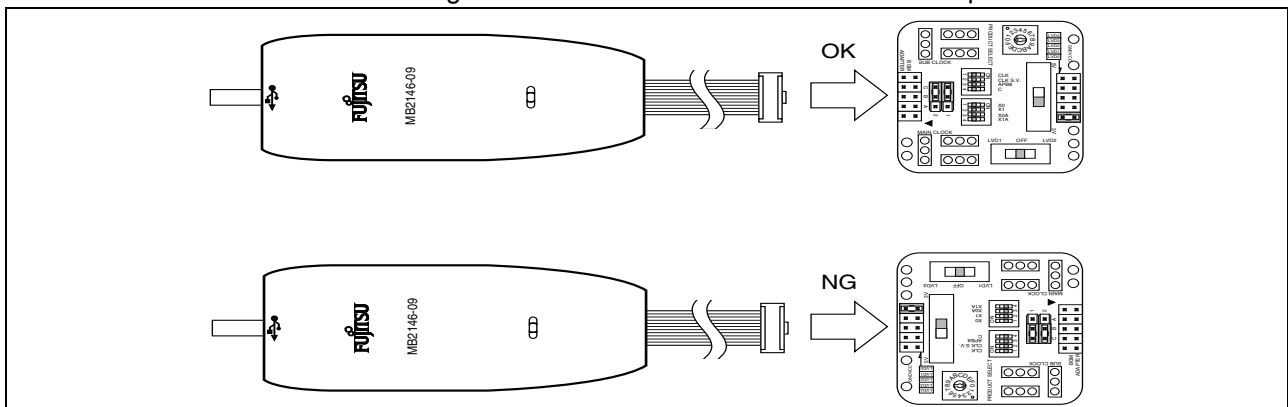
Connect the BGM adapter to the MCU board. Plug the BGM adapter's interface connector completely into the BGM adapter connector on the MCU board such that the index marks (▼) aligned (see “Figure 3-2”).

Figure 3-2. Connection of MCU Board and BGM Adapter



- Note on connection
 - Be sure to connect the BGM adapter connector (CN3). The BGM adapter connector and the LVD2 detection voltage selector jumper plug have the same shape (see “Figure 3-3”). The MCU board may break if the BGM adapter connector is accidentally plugged into the LVD2 detection voltage selector jumper plug (S2) on the other side of the board.

Figure 3-3. Connection Direction of BGM Adapter



- To supply a main clock signal and sub clock signal from the user system, provide an oscillation circuit on the user system so that it supplies the clock signal to the MCU board via a buffer circuit.
- Disconnection
 1. Remove the BGM adapter from the MCU board. Holding the MCU board firmly, pull the BGM adapter vertically from the BGM adapter connector on the MCU board.
 2. Remove the header board from the MCU board. Remove it with uniform force without applying force to only one point.

4. How to Setup



■ How to the switch and jumper plug on a MCU board setup

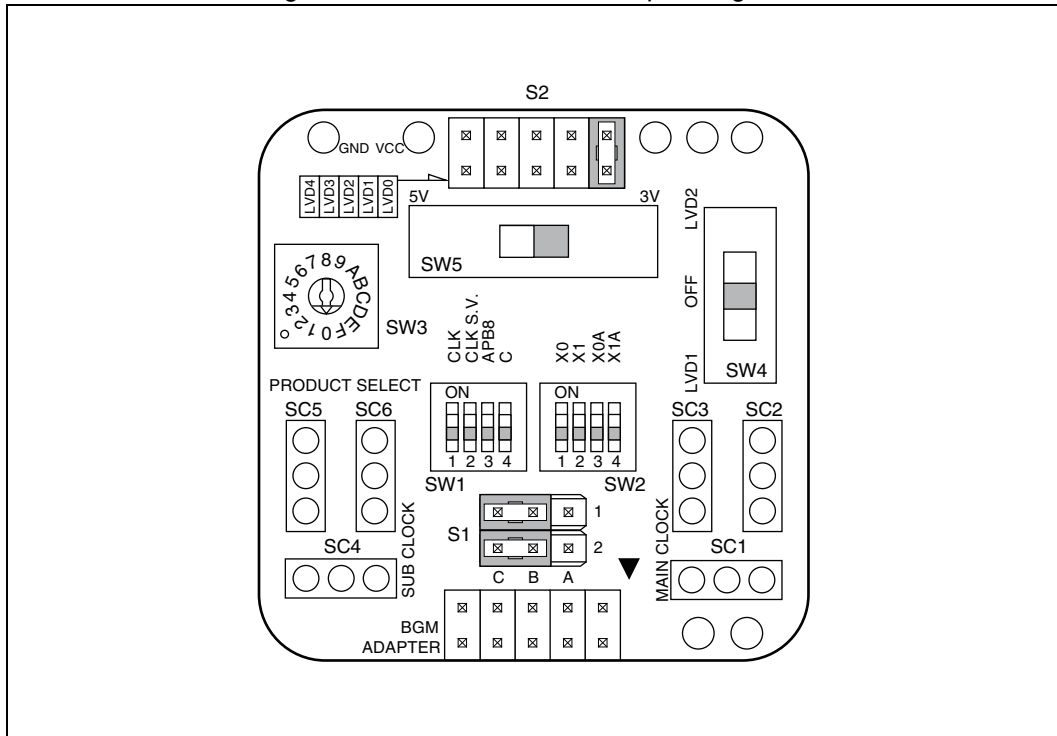
Please set the following switches referring to “[Figure 4-1. The Switch and Jumper Plug on a MCU Board](#)”.

1. Set the clock selector switch (SW1-1) to **ON** or **OFF** to disable or enable the sub clock, respectively.
2. Set the clock supervisor selector switch (SW1-2) to **OFF**.
3. Set the C-pin selector switch (SW1-4) to **OFF**.
4. Set the clock input selector switch (SW2).
Check that value with “[■ Setting of the clock input selector switch \(SW2\)](#)”.
5. Set the product selector switch (SW3) to the value corresponding to the number of pins on the production MCU.
Check that value with “[■ Setting of the product selector switch \(SW3\)](#)”.
6. Set the LVD selector switch (SW4) to **OFF**.
7. Set the power supply selector switch (SW5) to 3 V.
8. Set the sub clock selector jumper plug (S1).
Check that value with “[■ Setting of the sub clock selector jumper plug \(S1\)](#)”.

Please use with following settings, because APB8 bus and LVD2 functions are not available.

- Set the APB8 bus output selector switch (SW1-3) to **OFF**.
- Set the LVD2 detection voltage selector jumper plug (S2) to LVD0.
Check that value with “[■ Setting of the LVD2 detection voltage selector jumper plug \(S2\)](#)”.

Figure 4-1. The Switch and Jumper Plug on a MCU Board

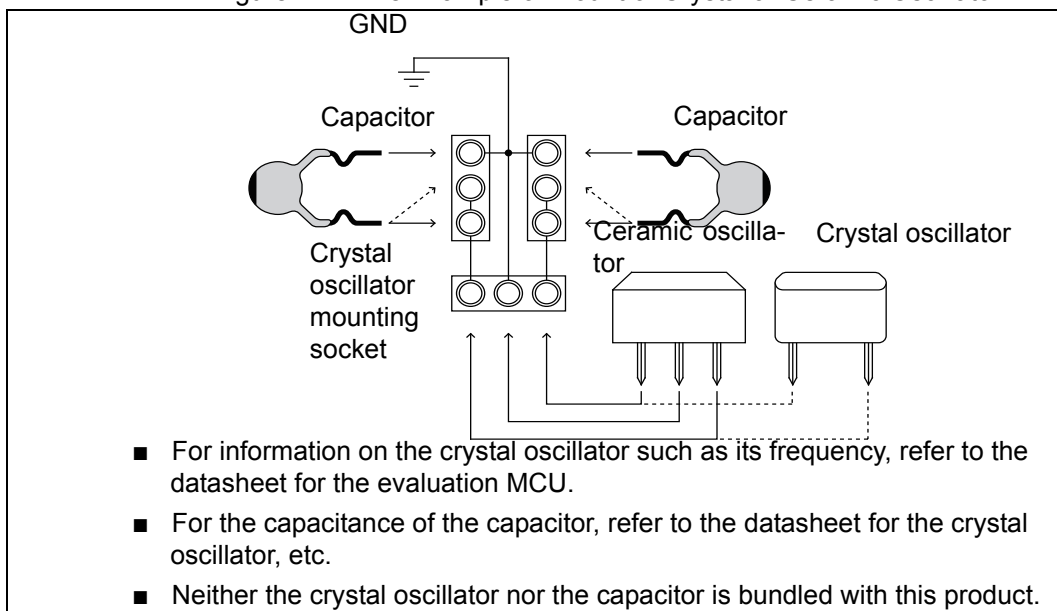


■ How to oscillator mounting on a MCU board

Mount a crystal or ceramic oscillator in the crystal oscillator mounting sockets (for the main clock and sub clock) on the MCU board.

The MCU board has one crystal oscillator mounting socket for the main clock and the other for the sub clock. To distinguish them from each other, the board has the “MAIN CLOCK” and “SUB CLOCK” labels are printed on the board near the main clock socket and sub clock socket. Mount the crystal or ceramic oscillator along with the capacitors on the MCU board (see “Figure 4-2”).

Figure 4-2. The Example of Mount of Crystal or Ceramic Oscillator



- Handling notes
 - Data can not be written/erased to lower banks (1000_H to 3FFF_H) in the software development support environment for the F²MC-8FX (MB95FV100D and MB2146-09B-E).
 - Do not perform a chip erase when using the software development support environment for the F²MC-8FX (MB95FV100D and MB2146-09B-E).
- Setting of the switch and jumper plug

The positions of the switch and jumper plug on the MCU board is shown in [Figure 4-3](#), and specifications are shown in [Table 4-1](#).

Figure 4-3. Positions of Switches and Jumper Plugs on the MCU Board

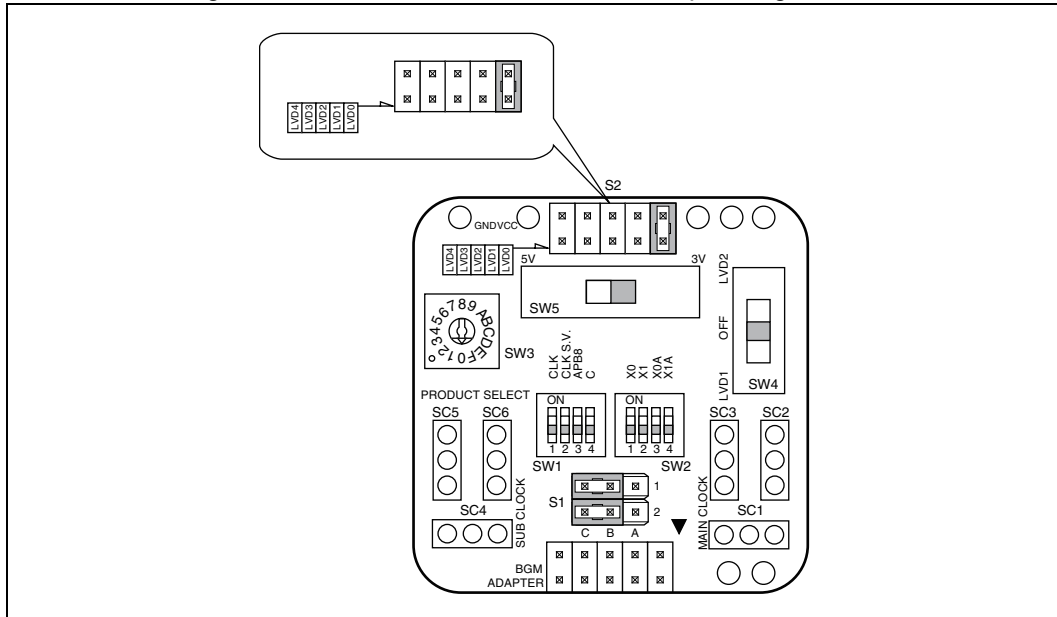


Table 4-1. Switch and Jumper Plug Settings

| Switch/Jumper plug | | Settings | Shipment setting |
|---|-------|---|------------------|
| Clock selector switch | SW1-1 | ON : Disable the sub clock OFF : Enable the sub clock | OFF |
| Clock supervisor selector switch | SW1-2 | ON : Enable the clock supervisor function OFF : Disable the clock supervisor function | OFF |
| APB8 bus output selector switch | SW1-3 | ON : Enable the APB8 bus OFF : Disable the APB8 bus | OFF |
| C-pin selector switch | SW1-4 | ON : Connect the C pin to the 0.1μF capacitor on the MCU board OFF : Disconnect the C pin from the 0.1μF capacitor on the MCU board | OFF |
| Clock input selector switch | SW2 | Select the main clock and sub clock source on the MCU board or on the user system (See “■ Setting of the clock input selector switch (SW2)”). | OFF |
| Product selector switch | SW3 | Set this switch depending on the number of pins on the target MCU to be used (See “■ Setting of the product selector switch (SW3)”). | 0 |
| LVD selector switch | SW4 | Select the low-voltage detection function. LVD1 : LVD1 enabled OFF : LVD function disabled LVD2 : LVD2 enabled | OFF |
| Voltage selector switch | SW5 | Select 5V or 3V supply for the operating voltage of the evaluation MCU. 5V : 5V supply 3V : 3V supply | 3V |
| Sub clock selector jumper plug | S1 | Select whether to use the sub clock. (See “■ Setting of the sub clock selector jumper plug (S1)”). | Jumper of B-C |
| LVD2 detection voltage selector jumper plug | S2 | Set the LVD2 detection voltage (See “■ Setting of the LVD2 detection voltage selector jumper plug (S2)”). | LVD0 |

■ Setting of the clock input selector switch (SW2)

Figure 4-4 shows the clock input selector switch. Table 4-2 lists switch positions for the main clock supply source. Table 4-3 lists switch positions for the sub clock supply source.

Figure 4-4. Clock Input Selector Switch (SW2)

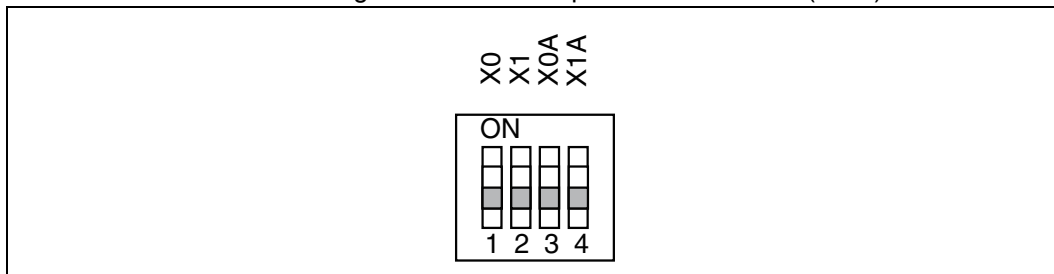


Table 4-2. Setting of Main Clock Supply Source

| Main clock supply source | Settings of the clock input selector switch | |
|--------------------------|---|-------|
| | SW2-1 | SW2-2 |
| Clock area | OFF | OFF |
| User system | ON | ON |

Table 4-3. Setting of the Sub Clock Supply Source

| Sub clock supply source | Settings of the clock input selector switch | |
|-------------------------|---|-------|
| | SW2-3 | SW2-4 |
| Clock area | OFF | OFF |
| User system | ON | ON |

■ Setting of the product selector switch (SW3)

Table 4-4 lists the setting of product selector switch and product type.

Table 4-4. Setting of the Product Selector Switch

| Switch setting | Product type |
|----------------|--|
| 0 | 100-pin package type |
| 1 | 80-pin package type |
| 2 | 64-pin package type |
| 3 | 48-pin, 52-pin package type |
| 4 | 32-pin package type |
| 5 | 28-pin package type |
| 6 | 20-pin package type |
| 7 | Setting Prohibited |
| 8 | 100-pin package, LCD function integrated type |
| 9 | 80-pin package, LCD function integrated type |
| A | 64-pin package, LCD function integrated type |
| B | 48-pin, 52-pin package, LCD function integrated type |
| C | Setting Prohibited |
| D | |
| E | |
| F | |

■ Setting of the sub clock selector jumper plug (S1)

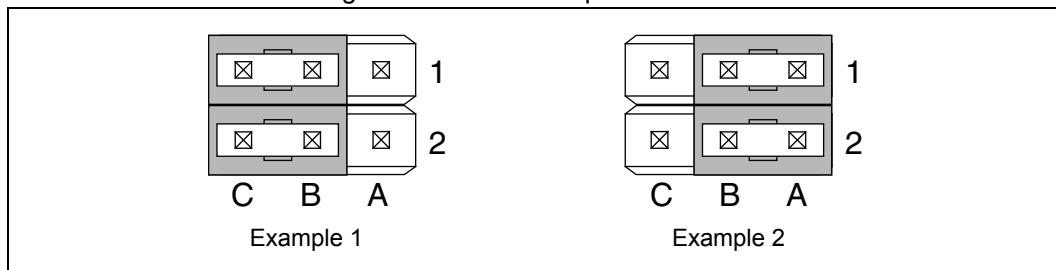
Table 4-5 lists jumper plug positions and sub clock selection. Figure 4-5 shows examples of sub clock selection.

Table 4-5. Setting of Sub Clock Selector

| Sub clock | | | Settings of the sub clock selector jumper plug (S1) | | Example of settings |
|-----------|---------------|------------------------------|---|-----------------------|---------------------|
| Used | Supply source | M1 correspondence pin | X0A | X1A | |
| enable | Clock area | X0A : R3 pin X1A : V1 pin | Jumper of 1: B - 1: C | Jumper of 2: B - 2: C | Example 1 |
| | User system* | | Jumper of 1: A - 1: B | Jumper of 2: A - 2: B | |
| disable | - | | | | Example 2 |

* : Oscillation is not guaranteed when the crystal oscillator is mounted on the user system.

Figure 4-5. The Example of Sub Clock Selection



■ Setting of the LVD2 detection voltage selector jumper plug (S2)

Figure 4-6 shows the setting of the LVD2 detection voltage selector jumper plug (S2). Table 4-6 lists jumper plug positions for detection voltages.

These settings cannot be used during debugging. Set the jumper to LVD0 to use the debugger.

Figure 4-6. The LVD2 Detection Voltage Selector Jumper Plug (S2)

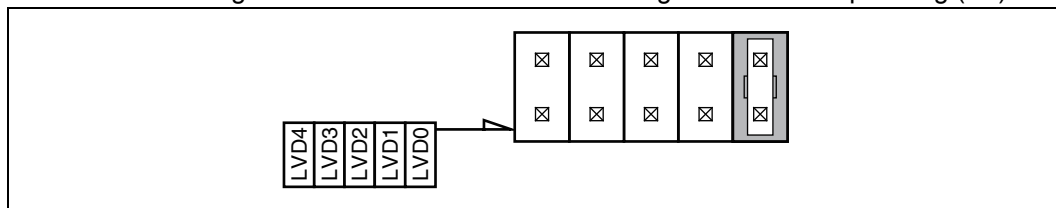


Table 4-6. Setting of the LVD2 Detection Voltage Selector Jumper Plug

| Jumper plug position | LVD2 setting value |
|----------------------|--------------------|
| LVD0 | + 4.17V |
| LVD1 | + 3.74V |
| LVD2 | + 3.3V |
| LVD3 | + 2.9V |
| LVD4 | + 2.6V |

5. Product Specifications



■ General specifications

The general specifications of the MCU board are shown in [Table 5-1](#).

Table 5-1. MCU Board General Specifications

| Item | Specification |
|------------------------|--|
| Name | MCU board for the F ² MC-8FX MB95FV100D-101 |
| Model number | MB2146-301B-E |
| Power supply | Evaluation MCU (MB95FV100D-101) : + 3.3V (UVcc) MCU board power supply : + 3.3V (supplied by the user system) |
| Frequency of operation | Max. 16.25MHz |
| Operating temperature | 5 °C to 35 °C |
| Operating humidity | 20 % to 80 % (No condensation is allowed.) |
| Dimensions | 40.0mm (W) × 40.0mm (D) × 14.6mm (H) |
| Weight | 13g |

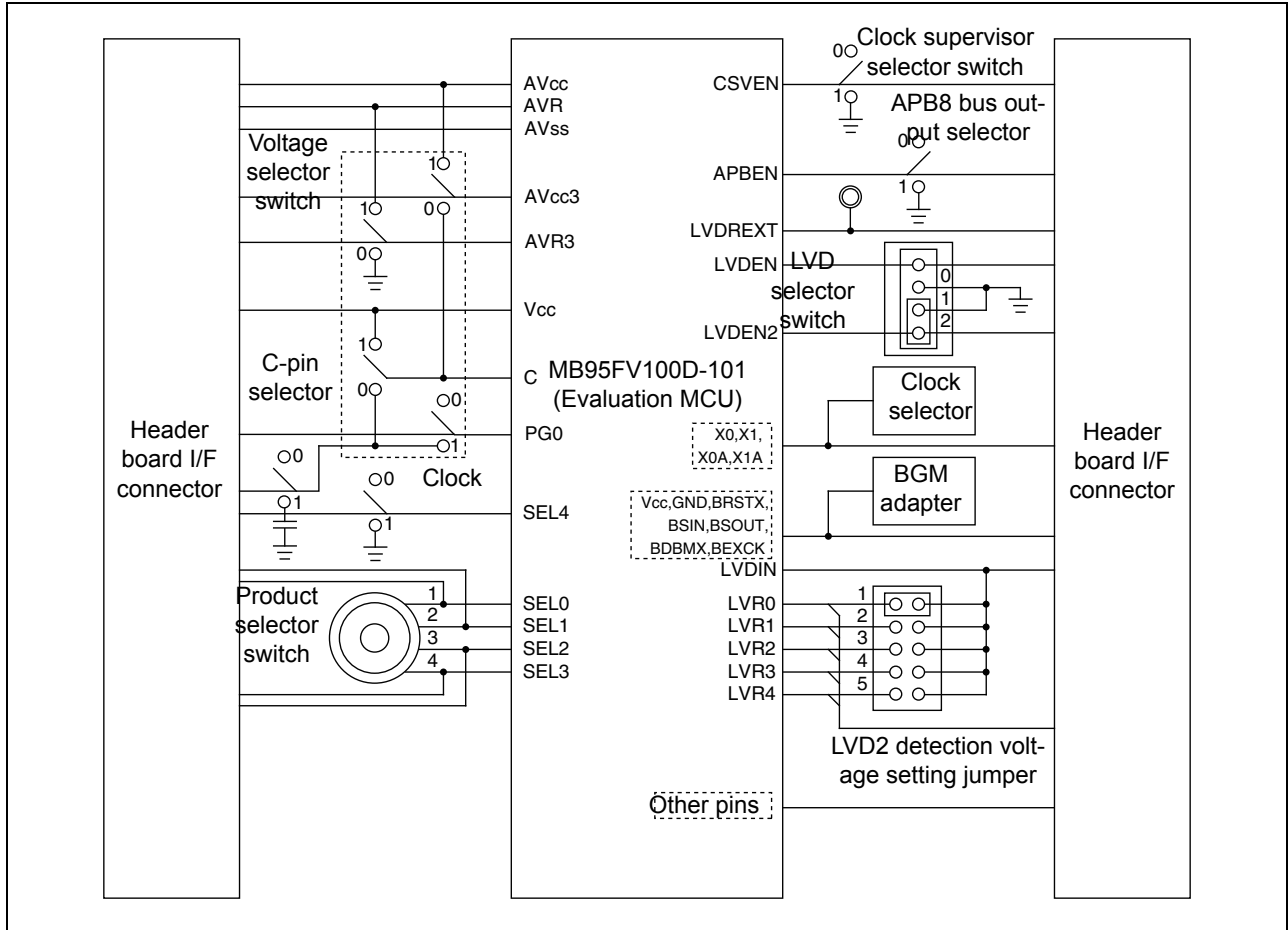
■ Functional explanation

The functional specifications of the MCU board are shown in [Table 5-2](#), and a functional block diagram is shown in [Figure 5-1](#).

Table 5-2. MCU Board Functional Specifications

| Item | Description |
|-----------------------|--|
| MCU board function | Serves as the adapter used in combination with the BGM adapter and header board to provide connection between the BGM adapter and evaluation MCU and between the evaluation MCU and user system. |
| Switches | Serve for clock selection, clock supervisor selection, APB8 bus output selection, C-pin setting, clock selection, product selection, low-voltage detection setting, and voltage selection. |
| Jumper plugs | The jumper plugs on the MCU board can be used to make various settings for low-voltage detection and clock selection. |
| Clock mounting socket | The crystal oscillator mounted socket on the MCU board is used to supply clock signals to the main clock (X0/X1) and sub clock (X0A/X1A) pins on the evaluation MCU from the MCU board. |

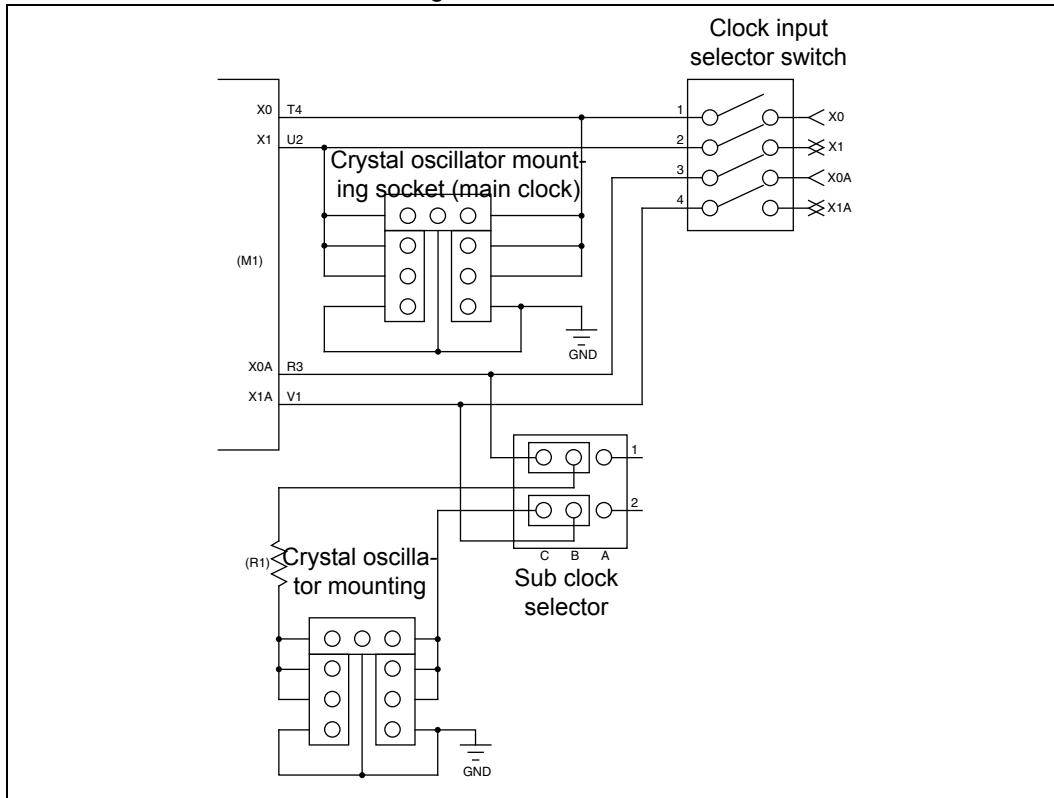
Figure 5-1. MCU Board Functional Block Diagram



■ **Clock settings**

Figure 5-2 shows the clock-related circuit diagram.

Figure 5-2. Clock Selector Circuit



■ **Header board specifications**

Figure 5-3 shows recommended dimensions of the header board connected to the MCU board.

Table 5-3 lists the general specifications of the header board.

Figure 5-3. Recommended Dimensions of the Header Board (Top View)

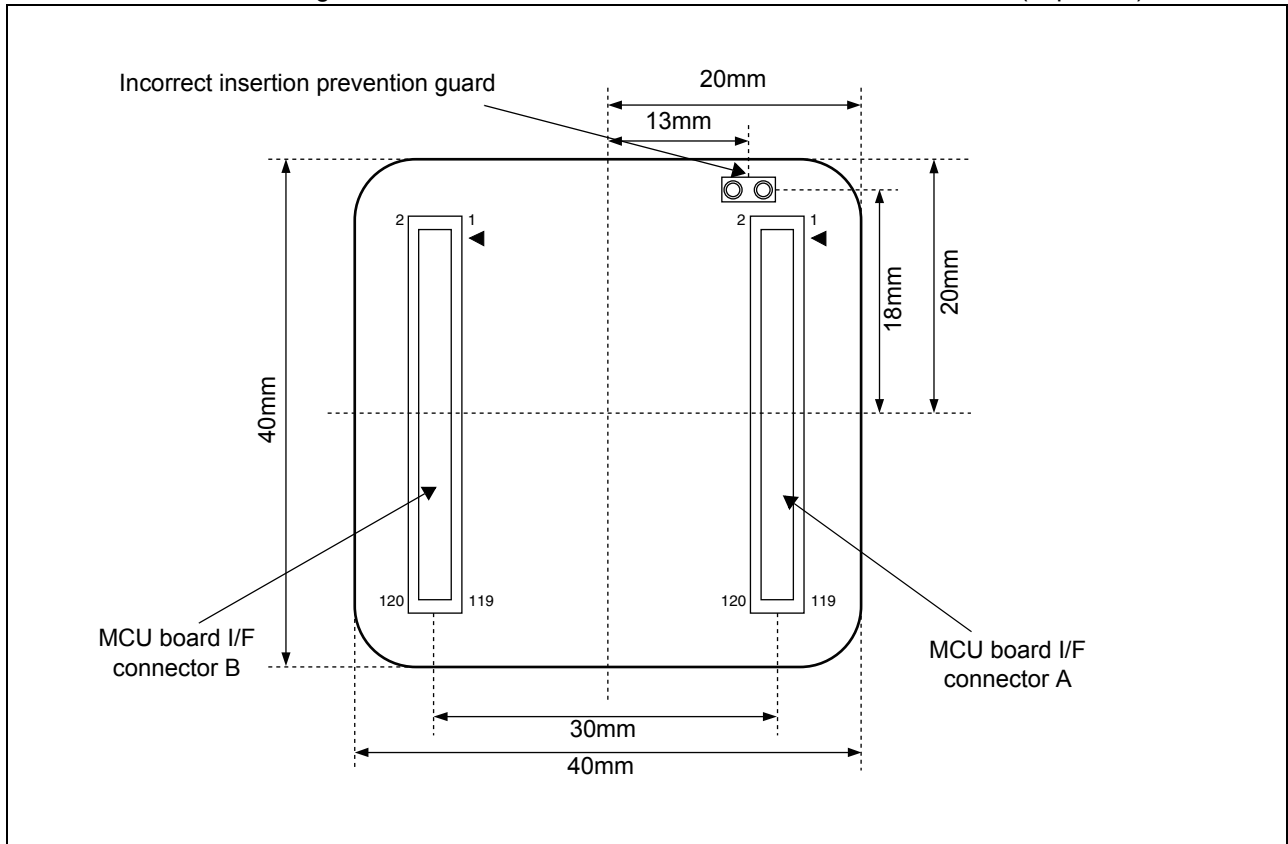


Table 5-3. General Specifications of the Header Board.

| Item | Description |
|--|--|
| MCU board interface connector | 120 pin 0.5mm pitch 2 piece connector (Straight) × 2 Model number: WR-120SB-VF-N1 (Japan Aviation Electronics Industry, Limited) |
| Incorrect insertion prevention guard | 2 pin SIP socket Model number: PCW-3-1-1PW (Mac-Eight Co.,Ltd.) |
| Spacing between the MCU and header boards when engaged | Approx. 5.0mm |

■ Connector socket specifications

The specifications of a connector and a socket is shown in [Table 5-4](#).

Table 5-4. Connector and Socket Specifications

| Item | Description |
|----------------------------------|---|
| Header board interface connector | Connects the MCU board to the header board. |
| BGM adapter connector | Connects the MCU board to the BGM adapter. |
| Main clock mounting socket | Mounts the main clock crystal oscillator. |
| Sub clock mounting socket | Mounts the sub clock crystal oscillator. |

■ **Pin assignment of header board I/F connector**

Table 5-5 and Table 5-6 lists the pin assignments of the header board interface connectors on the MCU board.

Table 5-5. Pin Assignment of Header Board I/F Connector A

| Connector Pin Number | Evaluation MCU Pin Number | Signal line name | Connector Pin Number | Evaluation MCU Pin Number | Signal line name | Connector Pin Number | Evaluation MCU Pin Number | Signal line name |
|----------------------|---------------------------|------------------|----------------------|---------------------------|------------------|----------------------|---------------------------|------------------|
| 1 | A9 | PC4 | 41 | E2 | LVR3 | 81 | P3 | BSOUT |
| 2 | B9 | PC1 | 42 | E1 | LVSS * | 82 | P4 | BDBMX |
| 3 | C9 | PC2 | 43 | F4 | LVDREXT | 83 | R1 | P83 |
| 4 | D9 | PC3 | 44 | F3 | LVDBGR | 84 | R2 | BRSTX |
| 5 | A8 | PC0 | 45 | F2 | LVDEXX | 85 | R3 | X0A |
| 6 | B8 | PB4 | 46 | F1 | P22A | 86 | R4 | RSTX |
| 7 | C8 | PB5 | 47 | – | GND * | 87 | T1 | ROMS1 |
| 8 | D8 | PB6 | 48 | – | GND * | 88 | T2 | BSIN |
| 9 | A7 | PB7 | 49 | G4 | P20A | 89 | T3 | Vss * |
| 10 | B7 | PB2 | 50 | G3 | NC1 | 90 | T4 | X0 |
| 11 | C7 | PB0 | 51 | G2 | P21A | 91 | U1 | BEXCK |
| 12 | D7 | PB1 | 52 | G1 | P23A | 92 | U2 | X1 |
| 13 | A6 | PB3 | 53 | H4 | P24A | 93 | U3 | MOD |
| 14 | B6 | PA2 | 54 | H3 | P25A | 94 | U4 | PF2 |
| 15 | C6 | P95 | 55 | H2 | P26A | 95 | V1 | X1A |
| 16 | D6 | PA0 | 56 | H1 | P27A | 96 | V2 | Vcc53 * |
| 17 | A5 | PA3 | 57 | J4 | P24B | 97 | – | GND * |
| 18 | B5 | P94 | 58 | J3 | P50 | 98 | – | GND * |
| 19 | C5 | P90 | 59 | J2 | P23B | 99 | V3 | PINT0 |
| 20 | D5 | P91 | 60 | J1 | P51 | 100 | V4 | PSEL_EXT |
| 21 | A4 | PA1 | 61 | K1 | P52 | 101 | R5 | PF1 |
| 22 | A3 | P93 | 62 | K2 | P55 | 102 | T5 | PF0 |
| 23 | – | GND * | 63 | K3 | P54 | 103 | U5 | NC2 |
| 24 | – | GND * | 64 | K4 | P53 | 104 | V5 | PENABLE |
| 25 | A2 | CSVENX | 65 | L1 | P70 | 105 | R6 | APBENX |
| 26 | A1 | Vss * | 66 | L2 | P74 | 106 | T6 | PINT1 |
| 27 | B4 | P92 | 67 | L3 | P73 | 107 | U6 | PCLK |
| 28 | B3 | TCLK | 68 | L4 | P72 | 108 | V6 | PADDR0 |
| 29 | B2 | LVCC * | 69 | M1 | P71 | 109 | R7 | PACTIVE |

| Connector Pin Number | Evaluation MCU Pin Number | Signal line name | Connector Pin Number | Evaluation MCU Pin Number | Signal line name | Connector Pin Number | Evaluation MCU Pin Number | Signal line name |
|----------------------|---------------------------|------------------|----------------------|---------------------------|------------------|----------------------|---------------------------|------------------|
| 30 | B1 | LVDIN | 70 | M2 | P76 | 110 | T7 | PLOCK |
| 31 | C4 | Cpin | 71 | M3 | P80 | 111 | U7 | PWRITE |
| 32 | C3 | Vcc51 * | 72 | M4 | P77 | 112 | V7 | PADDR1 |
| 33 | C2 | LVDENX2 | 73 | – | GND * | 113 | R8 | PADDR2 |
| 34 | C1 | LVR4 | 74 | – | GND * | 114 | T8 | PADDR3 |
| 35 | D4 | TESTO | 75 | N1 | P75 | 115 | U8 | PADDR4 |
| 36 | D3 | LVDOOUT | 76 | N2 | P82 | 116 | V8 | PADDR5 |
| 37 | D2 | LVR2 | 77 | N3 | PG0 | 117 | R9 | PADDR7 |
| 38 | D1 | BGOENX | 78 | N4 | P84 | 118 | T9 | PRDATA0 |
| 39 | E4 | LVR1 | 79 | P1 | P81 | 119 | U9 | PADDR6 |
| 40 | E3 | LVR0 | 80 | P2 | ROMS0 | 120 | V9 | PRDATA1 |

Table 5-6. Pin assignment of header board I/F connector B


| Connector Pin Number | Evaluation MCU Pin Number | Signal line name | Connector Pin Number | Evaluation MCU Pin Number | Signal line name | Connector Pin Number | Evaluation MCU Pin Number | Signal line name |
|----------------------|---------------------------|------------------|----------------------|---------------------------|------------------|----------------------|---------------------------|------------------|
| 1 | A10 | PC5 | 41 | E17 | NC4 | 81 | P16 | P34 |
| 2 | B10 | PD0 | 42 | E18 | SEL0 | 82 | P15 | P35 |
| 3 | C10 | PC6 | 43 | F15 | SEL3 | 83 | R18 | P44 |
| 4 | D10 | PC7 | 44 | F16 | SEL4 | 84 | R17 | P36 |
| 5 | A11 | PD1 | 45 | F17 | SEL1 | 85 | R16 | P31 |
| 6 | B11 | PD2 | 46 | F18 | P04C | 86 | R15 | AVcc3 |
| 7 | C11 | PD3 | 47 | – | GND * | 87 | T18 | P40 |
| 8 | D11 | PD4 | 48 | – | GND * | 88 | T17 | P32 |
| 9 | A12 | PD5 | 49 | G15 | P06C | 89 | T16 | AVss |
| 10 | B12 | PD7 | 50 | G16 | P07C | 90 | T15 | AVR |
| 11 | C12 | P61 | 51 | G17 | P05C | 91 | U18 | P33 |
| 12 | D12 | P60 | 52 | G18 | P00C | 92 | U17 | P30 |
| 13 | A13 | PD6 | 53 | H15 | P01C | 93 | U16 | AVR3 |
| 14 | B13 | P64 | 54 | H16 | P02C | 94 | U15 | P15 |
| 15 | C13 | P66 | 55 | H17 | P03C | 95 | V18 | AVcc |
| 16 | D13 | P65 | 56 | H18 | P07A | 96 | V17 | DA0 |
| 17 | A14 | P62 | 57 | J15 | P04A | 97 | – | GND * |
| 18 | B14 | PE0A | 58 | J16 | P05A | 98 | – | GND * |
| 19 | C14 | PE3A | 59 | J17 | P06A | 99 | V16 | P14 |
| 20 | D14 | PE2A | 60 | J18 | P03A | 100 | V15 | P10 |
| 21 | A15 | P63 | 61 | K18 | P02A | 101 | R14 | P16 |
| 22 | A16 | P67 | 62 | K17 | P07B | 102 | T14 | DA1 |
| 23 | – | GND * | 63 | K16 | P01A | 103 | U14 | P13 |
| 24 | – | GND * | 64 | K15 | P00A | 104 | V14 | PWDATA7 |
| 25 | A17 | PE4A | 65 | L18 | P06B | 105 | R13 | P11 |
| 26 | A18 | Vcc54 * | 66 | L17 | P05B | 106 | T13 | P12 |

| Connector Pin Number | Evaluation MCU Pin Number | Signal line name | Connector Pin Number | Evaluation MCU Pin Number | Signal line name | Connector Pin Number | Evaluation MCU Pin Number | Signal line name |
|----------------------|---------------------------|------------------|----------------------|---------------------------|------------------|----------------------|---------------------------|------------------|
| 27 | B15 | PE1A | 67 | L16 | P04B | 107 | U13 | NC3 |
| 28 | B16 | PE5A | 68 | L15 | P03B | 108 | V13 | PWDATA3 |
| 29 | B17 | PE7A | 69 | M18 | P02B | 109 | R12 | PWDATA5 |
| 30 | B18 | PE3B | 70 | M17 | P00B | 110 | T12 | PWDATA6 |
| 31 | C15 | PE6A | 71 | M16 | P46 | 111 | U12 | PWDATA4 |
| 32 | C16 | Vss * | 72 | M15 | P47 | 112 | V12 | PRDATA7 |
| 33 | C17 | PE2B | 73 | – | GND * | 113 | R11 | PWDATA0 |
| 34 | C18 | PE7B | 74 | – | GND * | 114 | T11 | PWDATA1 |
| 35 | D15 | PE1B | 75 | N18 | P01B | 115 | U11 | PWDATA2 |
| 36 | D16 | PE0B | 76 | N17 | P43 | 116 | V11 | PRDATA6 |
| 37 | D17 | PE6B | 77 | N16 | P41 | 117 | R10 | PRDATA3 |
| 38 | D18 | SEL2 | 78 | N15 | P42 | 118 | T10 | PRDATA4 |
| 39 | E15 | PE5B | 79 | P18 | P45 | 119 | U10 | PRDATA5 |
| 40 | E16 | PE4B | 80 | P17 | P37 | 120 | V10 | PRDATA2 |

* : About power supply pins (common to connectors A and B)

Connect the Vcc51, Vcc53 and Vcc54 pins to Vcc. Disconnect the LVCC pin from Vcc.

Connect the Vss pin to GND. Disconnect the LVSS pin from GND.

 : 3.3V power supply pins

 : GND power supply pins

6. Additional Informations



For more informations please visit our websites:

<http://www.cypress.com/documentation/development-kitsboards/mb2146-301a-e>

<http://www.cypress.com/documentation/development-kitsboards/mb2146-09a-e>

Please contact your local support team for any technical question.

Revision History



Document Revision History

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| *A | 5274212 | 06/10/2016 | HUAL | Migrated to Cypress format |