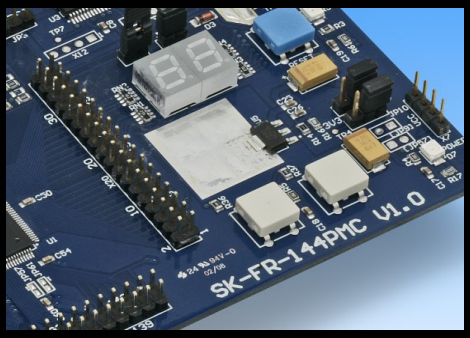
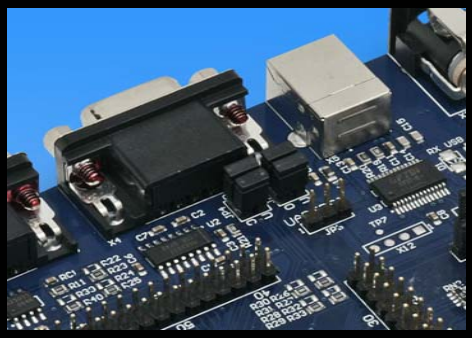
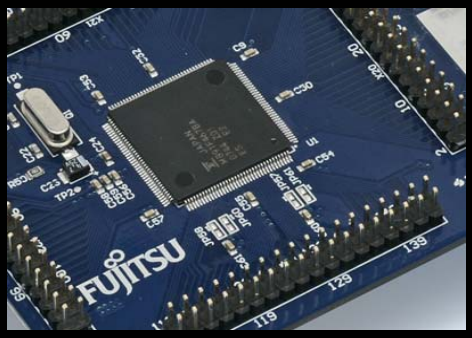
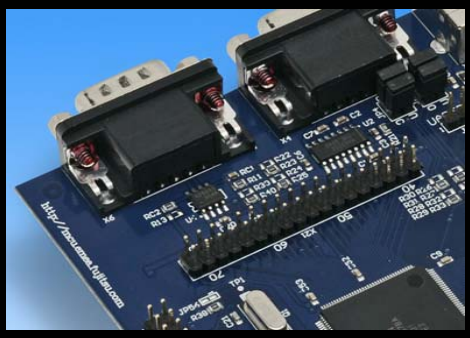


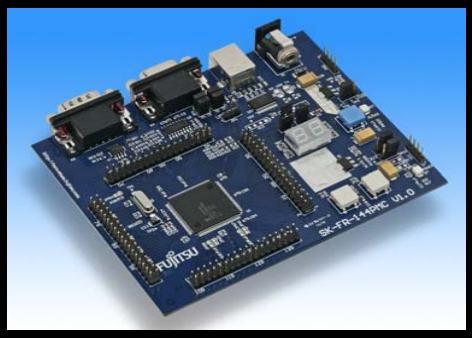


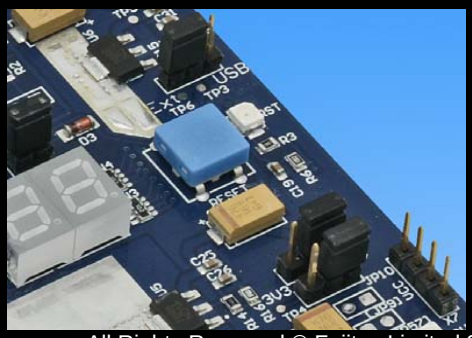


FUJITSU

SK-FR-144PMC-91467B







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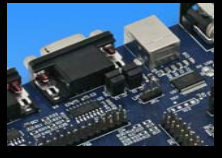
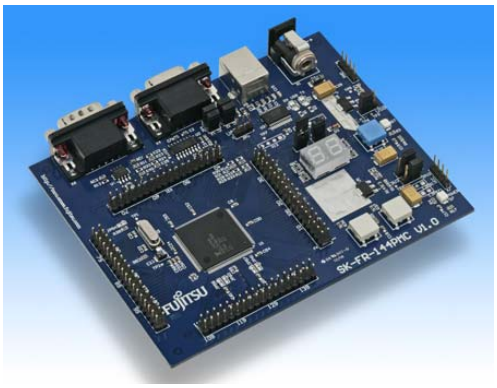
Overview



- **Introduction**
  - About the SK-FR-144PMC-91467B
  - SK-FR-144PMC-91467B content
  - Test it
  - The hardware
  - The software
- **Try yourself**
  - Software examples
  - Program download
  - New project
- **Optional tools**
  - Emulator, Programmer, etc.
- **Contacts**



- **Additional documents**
  - Schematic ‘SK-FR-144PMC-91467B’
  - Data sheet MB91467BA
  - Hardware manual MB91460 Series
  - AppNote ‘mb91v460_getting_started’
  - AppNote ‘start91460’

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About the SK-FR-144PMC-91467B

- **The SK-FR-144PMC-91467B is a low-cost evaluation board based on the Fujitsu FR microcontroller MB91460 Series**

- **The MB91460 Series includes the following features:**
  - Up to 2112 KByte Flash Memory
  - Up to 96 KByte RAM
  - Up to 6 CAN controller ISO11898-1 and ISO11898-2
  - Up to 8 LIN-USART interfaces
  - Four I²C interfaces
  - Timers (ICUs, OCUs, PPGs, others)
  - ADC
  - External interrupts
  - External bus I/F

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About the SK-FR-144PMC-91467B

- **The SK-FR-144PMC-91467B board includes the following features:**
  - Microcontroller MB91F467B
  - 1x UART-Transceiver (SUB-D9 connector)
  - 1x USB to serial converter
  - 1x High-speed CAN-Transceiver (SUB-D9 connector)
  - 2x LED-Display (7-Segment)
  - 2x ‘User’-button
  - 1x ‘Reset’-button, ‘Reset’-LED
  - All 144 pins routed to pin-header
  - On-board 5V and 3V voltage regulators, ‘Power’-LED
  - USB power-supply (external power supply possible)
  - The external bus I/F can be enabled optionally

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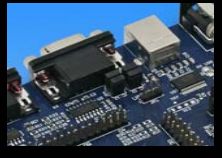
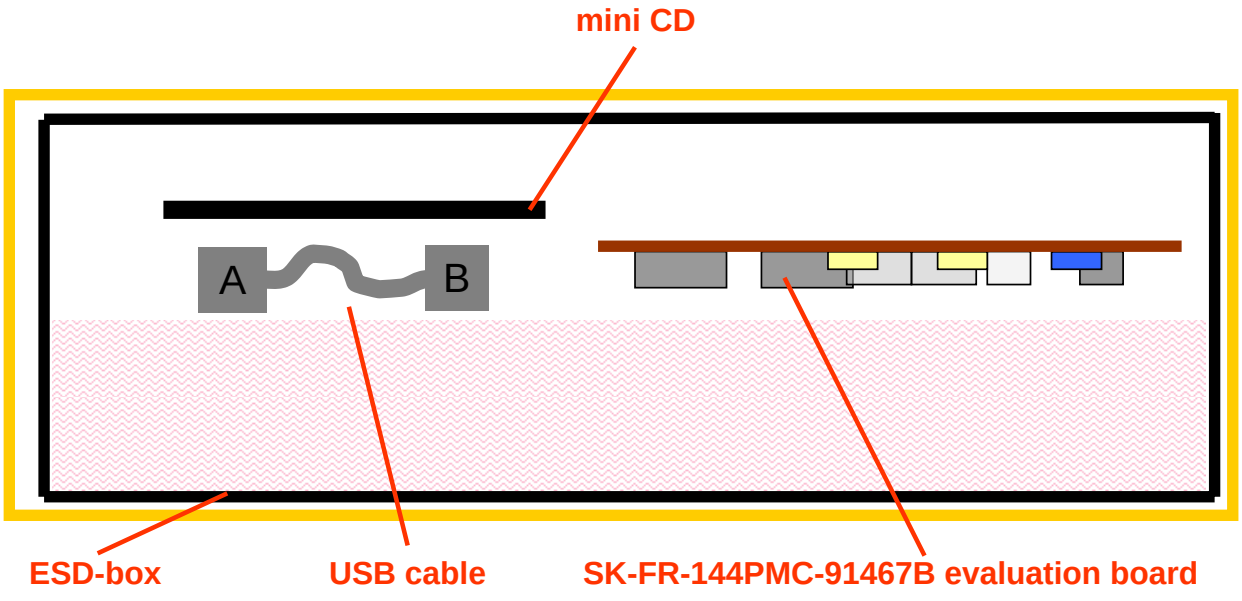
SK-FR-144PMC-91467B content



- **The SK-FR-144PMC-91467B contains**
  - SK-FR-144PMC-91467B evaluation board
  - USB cable
  - Mini CD with documentation and software examples
  - CD with demoversion of Accemic MDE2006



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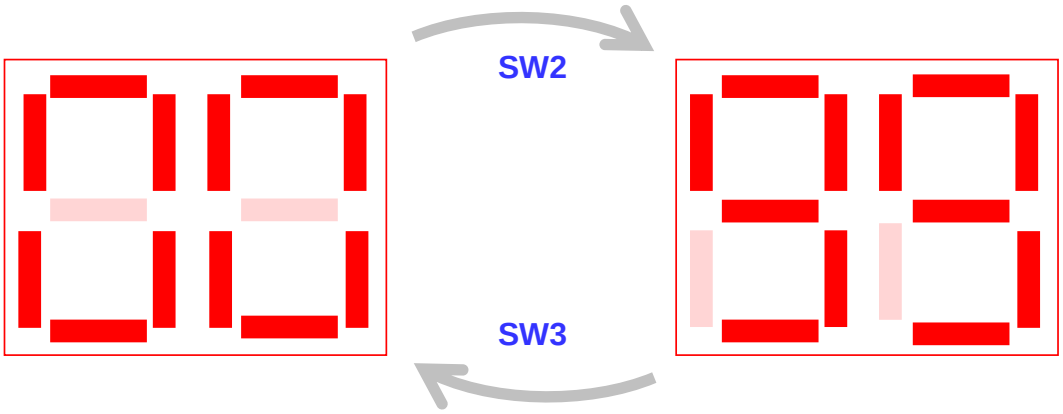
Test it

- **The microcontroller on the SK-FR-144PMC-91467B is already preprogrammed with a simple application.**
  - Connect the USB cable to your PC and the SK-FR-144PMC-91467B
  - Install the USB driver from the CD
  - Press the ‚Reset'- Button
  - The SK-FR-144PMC-91467B will start counting from 00 to 99.
  - The count direction can be changed by pressing the key buttons.



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Test it

Congratulations!

- **You finished successfully the first test**
- **Now you will get more details about the SK-FR-144PMC-91467B**
- **You will learn more about**
  - The on-board features
  - How to program the Flash
  - How to start your own application

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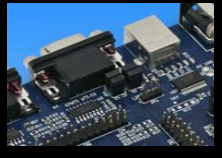
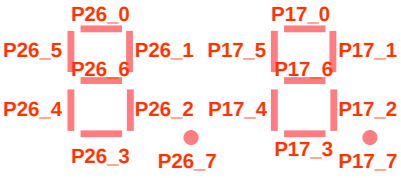
The Hardware

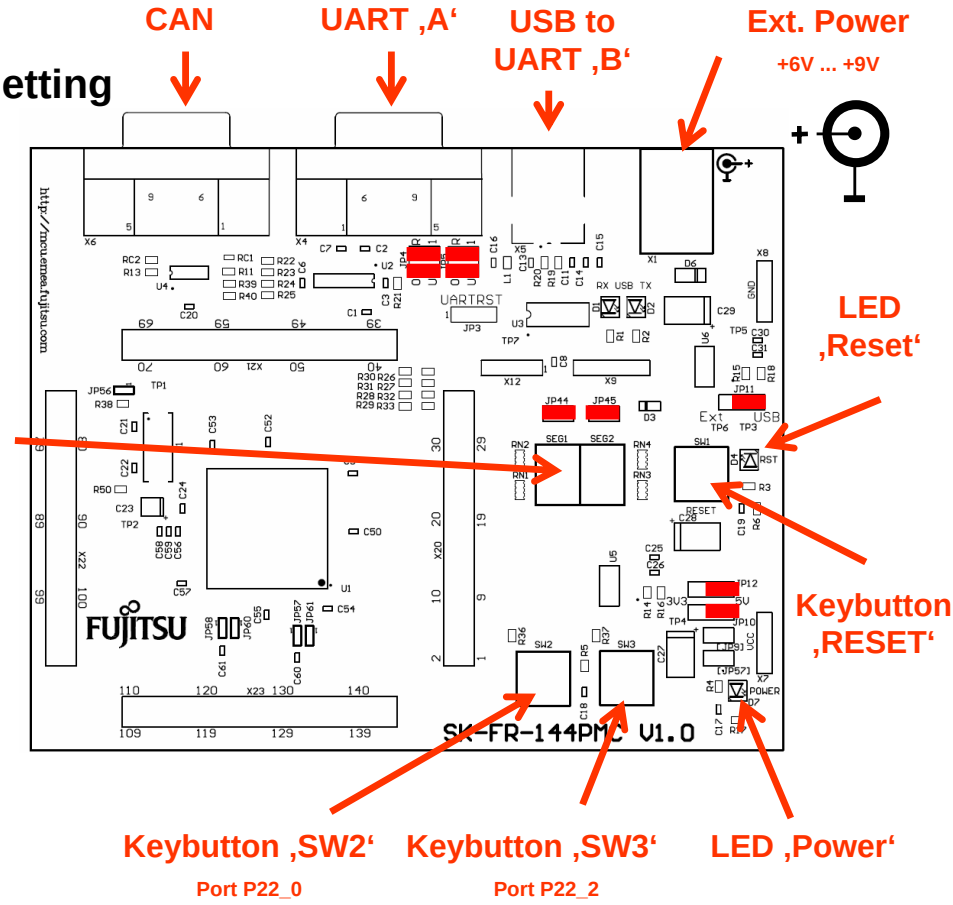
- **Main features**
- **Default Jumper setting**



7-Segment Display



SEG1: Port26 SEG2: Port17



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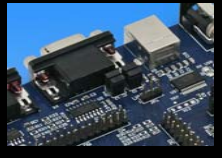
The Hardware



The jumpers

JP4: UART RX select

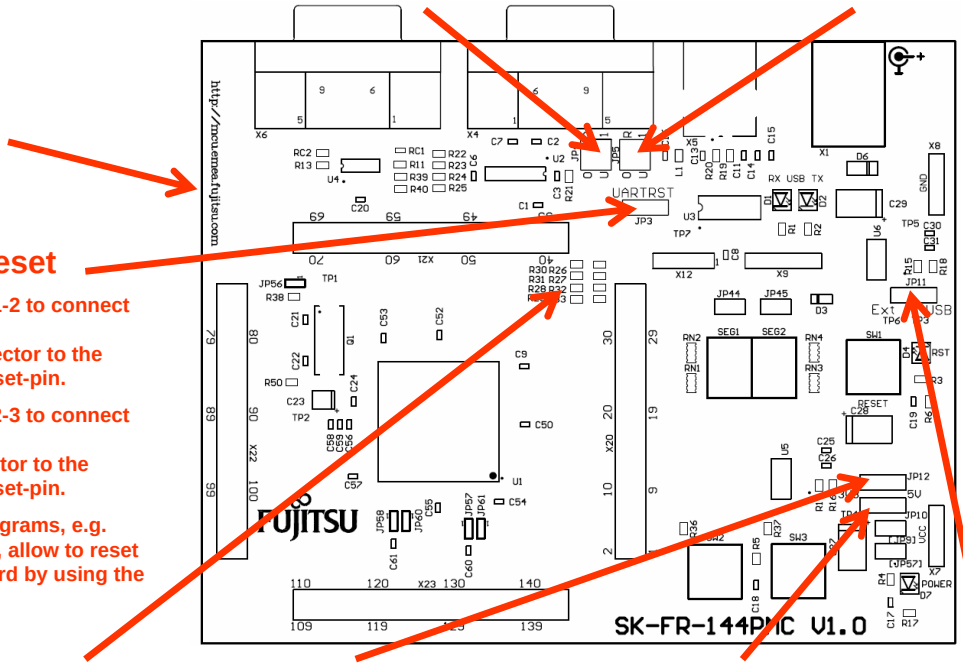
R-0: UART4=UART‘A‘ / U-1: UART5=UART‘B‘ (USB)

R-1: UART5=UART‘A‘ / U-0: UART4=UART‘B‘ (USB)

JP5: UART TX select

R-0: UART4=UART‘A‘ / U-1: UART5=UART‘B‘ (USB)

R-1: UART4=UART‘A‘ / U-0: UART5=UART‘B‘ (USB)



JP3: DTR-Reset

Set the jumper to 1-2 to connect the DTR-Signal of the UART connector to the microcontroller reset-pin.

Set the jumper to 2-3 to connect the DTR-Signal of the USB connector to the microcontroller reset-pin.

Some terminal-programs, e.g. Fujitsu‘s Skwizard, allow to reset the evaluation board by using the DTR-Signal.

JP12: 5V / 3.3V

5V: 5V is used for ext. Bus I/F

3V3: 3.3V is used for ect. Bus I/F

JP10: 5V / 3.3V

5V : 5V is used for IO supply

3V3: 3.3V is used for IO supply

JP11: Power Supply

USB: USB supply is used

Ext: External supply is used

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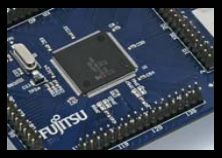
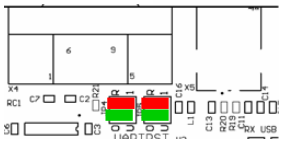
The Hardware



- **JP4, JP5 : UART selection**
  - UART4 and UART5 of the microcontroller can be used together with a typical RS232 SUB-D9 connector and a serial/USB converter
  - The jumpers JP4 and JP5 routes the channel to the connector

  - UART4 = USB-connector (X5), UART5 = Sub-D9 (X4) (default)
    - Setting of Jumper JP4 and JP5: U-0 / R-1

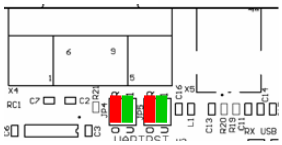
RS232 USB



(default)

  - UART4 = Sub-D9 (X4), UART5 = USB-connector (X5)
    - Setting of Jumper JP4 and JP5: U-1 / R-0

RS232 USB



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The Hardware

The microcontroller pins [MD3=0]

Pin	Pin-name	On SK-FR-144PMC-91467B used by
1	VSS5	GND
2	P27_6/AN22	
3	P27_7/AN23	
4	P26_0/AN24	SEG1-A
5	P26_1/AN25	SEG1-B
6	P26_2/AN26	SEG1-C
7	P26_3/AN27	SEG1-D
8	P26_4/AN28	SEG1-E
9	P26_5/AN29	SEG1-F
10	P26_6/AN30	SEG1-G
11	P26_7/AN31	SEG1-DP
12	P24_4/INT4	
13	P24_5/INT5	
14	P24_6/INT6	
15	P24_7/INT7	
16	P21_0/SIN0	
17	P21_1/SOT0	

Pin	Pin-name	On SK-FR-144PMC-91467B used by
18	VDD35	VDD35
19	VSS5	GND
20	P14_4/ICU4/TIN4/TTG12/4	
21	P14_5/ICU5/TIN5/TTG13/5	
22	P14_6/ICU6/TIN6/TTG14/6	
23	P14_7/ICU7/TIN7/TTG15/7	
24	P15_4/OCU4/TOT4	
25	P15_5/OCU5/TOT5	
26	P15_6/OCU6/TOT6	
27	P15_7/OCU7/TOT7	
28	P17_0/PPG0	SEG2-A
29	P17_1/PPG1	SEG2-B
30	P17_2/PPG2	SEG2-C
31	P17_3/PPG3	SEG2-D
32	P17_4/PPG4	SEG2-E
33	P17_5/PPG5	SEG2-F
34	P17_6/PPG6	SEG2-G

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The Hardware

The microcontroller pins (cont'd)

Pin	Pin-name	On SK-FR-144PMC-91467B used by
35	P17_7/PPG7	SEG2-DP
36	VDD35	VDD35
37	VSS5	GND
38	P20_0/SIN2/AIN0	
39	P20_1/SOT2/BIN0	
40	P20_2/SCK2/ZIN0/CK2	
41	P20_4/SIN3/AIN1	
42	P20_5/SOT3/BIN1	
43	P20_6/SCK3/ZIN1/CK3	
44	P24_0/INT0	
45	P24_1/INT1	
46	P23_0/RX0/INT8	CAN0 (RX)
47	P23_1/TX0	CAN0 (TX)
48	P23_2/RX1/INT9	
49	P23_3/TX1	
50	P23_4/RX2/INT10	
51	P23_5/TX2	

Pin	Pin-name	On SK-FR-144PMC-91467B used by
52	P23_6/RX3/INT11	
53	P23_7/TX3	
54	VDD5	VDD5
55	VSS5	GND
56	P22_0/RX4/INT12	Key button 'SW2'
57	P22_1/TX4	
58	P22_2/RX5/INT13	Key button 'SW3'
59	P22_3/TX5	
60	P22_4/SDA0/INT14	
61	P22_5/SCL0	
62	P22_6/SDA1/INT15	
63	P22_7/SCL1	
64	P16_0/PPG8	
65	P16_1/PPG9	
66	P16_2/PPG10	
67	P16_3/PPG11	
68	P16_4/PPG12/SGA	

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The Hardware

The microcontroller pins (cont'd)

Pin	Pin-name	On SK-FR-144PMC-91467B used by
69	P16_5/PPG13/SGO	
70	P16_6/PPG14	
71	P16_7/PPG15/ATGX	
72	VDD5	VDD5
73	VSS5	GND
74	MD_0	GND
75	MD_1	GND
76	MD_2	GND
77	MONCLK	
78	MD_3	GND [default]
79	X1	4 MHz Crystal
80	X0	4 MHz Crystal
81	VSS5	GND
82	X0A	GND
83	X1A	
84	INITX	Key button ‚Reset'

Pin	Pin-name	On SK-FR-144PMC-91467B used by
85	NMIX	VDD5
86	VSS5	GND
87	VCC18C	C23||C24
88	VDD5R	VDD5R
89	VDD5R	VDD5R
90	VDD5	VDD5
91	VSS5	GND
92	P19_0/SIN4	UART4 (RXD)
93	P19_1/SOT4	UART4 (TXD)
94	P19_2/SCK4/CK4	
95	P19_4/SIN5	UART5 (RXD)
96	P19_5/SOT5	UART5 (TXD)
97	P19_6/SCK5/CK5	
98	P18_0/SIN6	
99	P18_1/SOT6	
100	P18_2/SCK6/CK6	

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The Hardware

The microcontroller pins (cont'd)

Pin	Pin-name	On SK-FR-144PMC-91467B used by
101	P18_4/SIN7	
102	P18_5/SOT7	
103	P18_6/SCK7/CK7	
104	ALARM_0	
105	AVSS	GND
106	AVRH5	VDD5
107	AVCC5	VDD5
108	VDD5	VDD5
109	VSS5	GND
110	P29_0/AN0	
111	P29_1/AN1	
112	P29_2/AN2	
113	P29_3/AN3	
114	P29_4/AN4	
115	P29_5/AN5	
116	P29_6/AN6	

Pin	Pin-name	On SK-FR-144PMC-91467B used by
117	P29_7/AN7	
118	P28_0/AN8	
119	P28_1/AN9	
120	P28_2/AN10	
121	P28_3/AN11	
122	P28_4/AN12	
123	P28_5/AN13	
124	P28_6/AN14	
125	P28_7/AN15	
126	VDD5	VDD5
127	VSS5	GND
128	P24_2/INT2	
129	P24_3/INT3	
130	P14_0/ICU0/TIN0/TTG8/0	
131	P14_1/ICU1/TIN1/TTG9/1	
132	P14_2/ICU2/TIN2/TTG10/2	

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The Hardware

The microcontroller pins (cont'd)

Pin	Pin-name	On SK-FR-144PMC-91467B used by
133	P14_3/ICU3/TIN3/TTG11/3	
134	P15_0/OCU0/TOT0	
135	P15_1/OCU1/TOT1	
136	P15_2/OCU2/TOT2	
137	P15_3/OCU3/TOT3	
138	P27_0/AN16	
139	P27_1/AN17	
140	P27_2/AN18	
141	P27_3/AN19	
142	P27_4/AN20	
143	P27_5/AN21	
144	VDD35	VDD35

Pin	Pin-name	On SK-FR-144PMC-91467B used by

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The Software

- **The SK-FR-144PMC-91467B CD includes the following software:**
  - Softune Workbench (development platform for Fujitsu microcontroller)
  - MCU Flash programmer tool for MB91F467B
  - USB driver for on board USB-to-RS232 converter
  - Utilities (SKwizard terminal, etc.)
  - Software examples for the SK-FR-144PMC-91467B
- **Additionally you can order the latest „Fujitsu MICROS DVD“**
  - Includes documentation & software for all Fujitsu microcontrollers
  - Please contact your local distributor
- **Please check our dedicated microcontroller website**

  http://mcu.emea.fujitsu.com
  - for updates of the Flash programmer tool, utilities and examples
  - for data sheets, hardware manuals, application notes, etc

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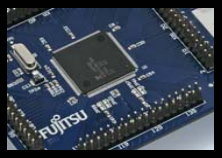
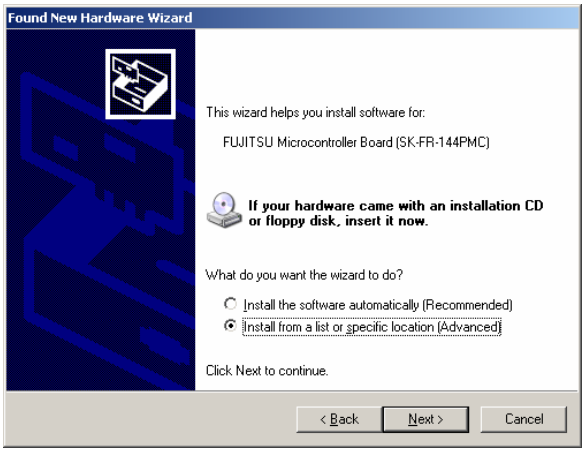
Installation of the USB-driver



- **Connect the SK-FR-144PMC-91467B to your PC's USB port**
  - Windows will 'Found New Hardware: SK-FR-144PMC-91467B' and the Hardware Wizard should start automatically
    - **Note: The installation procedure may differ with different operating systems**



  - Do not connect to Windows Update to search for software
  - Select 'Install from a list or specific location (Advanced)'
  - Within next windows select 'Search for the best driver' and browse on the CD to the folder 'drive:\...\USB-Driver\Win2000_XP_Vista_Fujitsu

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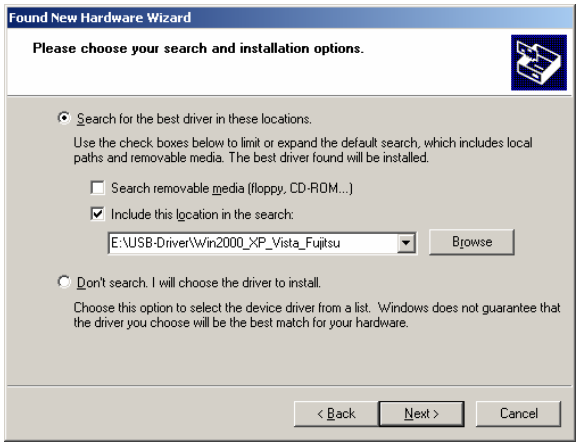
Installation of the USB-driver



- 'Continue anyway' although the Windows Logo test may not be passed
- Windows completes the installation by copying some files
- 'Finish' will close the window

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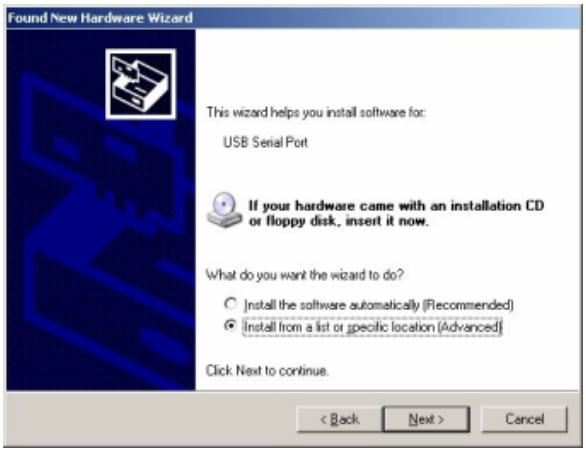
Installation of the USB-driver

- Again Windows will ‘Found New Hardware: USB Serial Port’ and the Hardware Wizard should start automatically
  - **Note: The installation procedure may differ with different operating systems**



- Do not connect to Windows Update to search for software
- Select ‘Install from a list or specific location (Advanced)’
- Within next windows select ‘Search for the best driver’ and browse on the CD to the folder ‘drive:\USB-Driver\Win2000_XP_Vista_Fujitsu’

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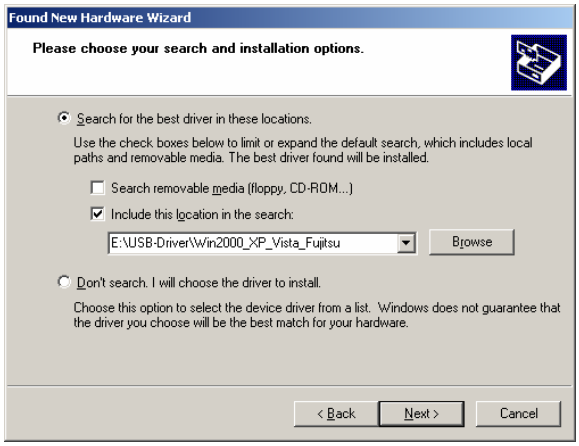
Installation of the USB-driver



- 'Continue anyway' although the Windows Logo test may not be passed
- Windows completes the installation by copying some files

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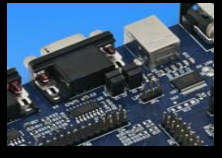
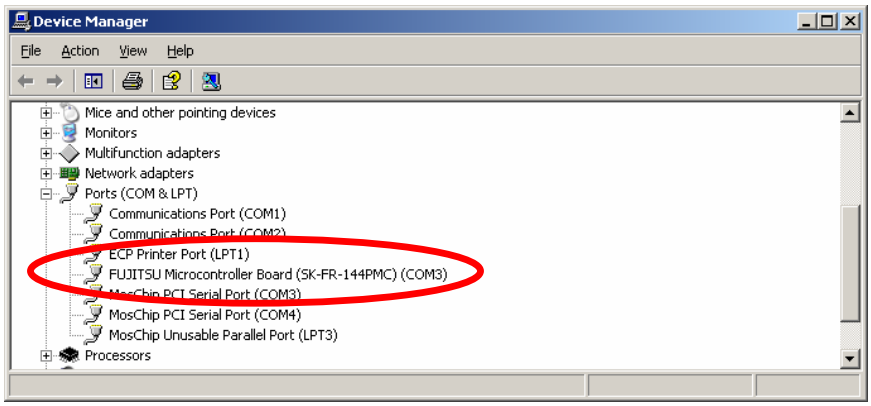
Installation of the USB-driver



- **Start the Device Manager of the Windows Control Panel**
  - START -> Settings -> Control Panel
  - Control Panel -> System -> Hardware -> Device Manager
- **Check ‘Ports’ for the assigned virtual COM-port number**
  - FUJITSU Microcontroller board (e.g.: COM3)



- **Ready!**
  - The SK-FR-144PMC-91467B board can be powered via USB (default, JP11)
  - Depending on JP4 and JP5 one UART is connected to USB

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The Development Software

- **Softune Workbench**
  - Free of charge (only registration is required)
  - Windows based development platform for all 32-bit microcontrollers
  - Includes: Editor, C-compiler, assembler, linker, core simulator
  - Supports optional hardware emulator
  - Please fill in the registration form and receive your password by email
  - Requires ‘administration’ or ‘power user’ rights on the PC

  - Start installation
    - Enter password and choose destination folder (e.g. c:\Softune6)

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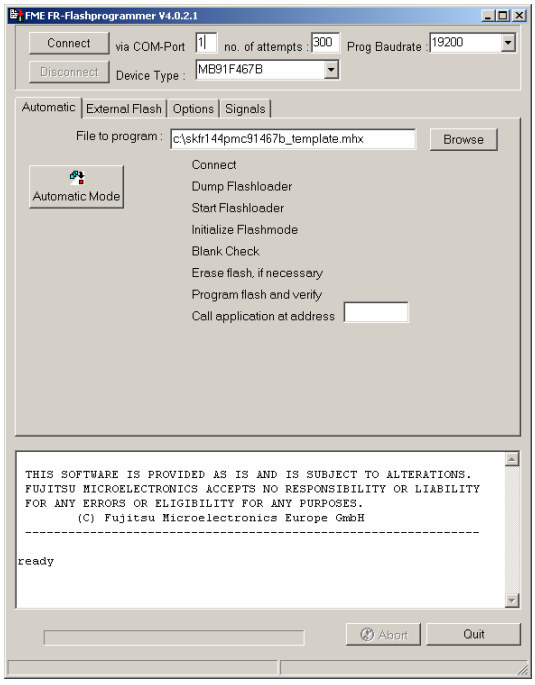
The FLASH Programmer

- **MCU Flash programmer**
  - Free of charge, no registration required
  - Windows based programming tool for all 32-bit Fujitsu microcontroller
  - Uses PC serial port COMx (incl. virtual COM port: USB-to-RS232)
  - Start installation



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Tools and Software Examples

- **SKwizard**
  - Free of charge terminal program
  - Start installation
    - choose destination folder (e.g. c:\Softune\Utilities\SKwizard)

- **The following examples are provided with the SK-FR-144PMC-91467B:**

  - skfr144pmc91467b_template
    - ‚Empty' project as base for user applications
  - skfr144pmc91467b_counter
    - Counts from 0 to 99 on the 7-segment Display
  - skfr144pmc91467b_uart_async
    - UART example using UART4/5
  - skfr144pmc91467b_adc8_dvm
    - Digital Voltage Meter based on the A/D-converter
  - skfr144pmc91467b_rlt
    - ReloadTimer0 interrupt is used for toggling 7-segment Display

(Detailed program description can be found in each project's 'readme.txt')

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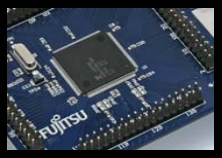
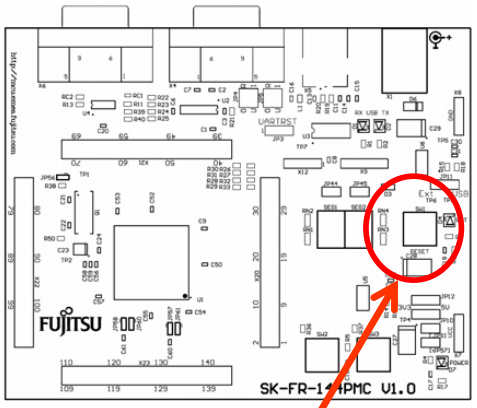
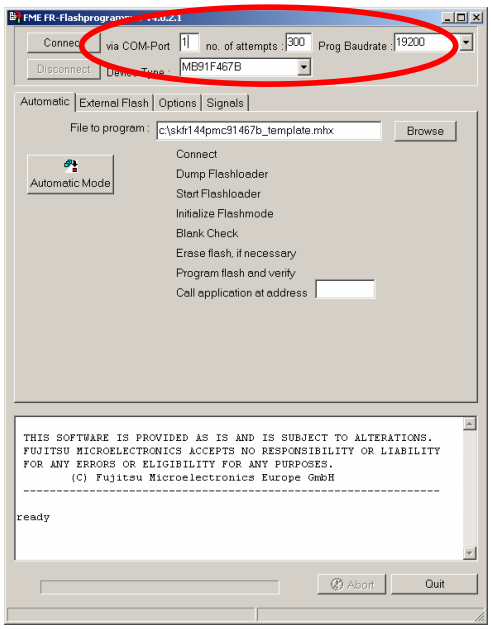
Program Download



- **Connect SK-FR-144PMC-91467B board to PC**
  - RS232 or USB can be used
- **Start the FME MCU Flash programmer**
  - Set COM-Port and Baudrate

RS232 USB port
(see chapter Jumper seetings)





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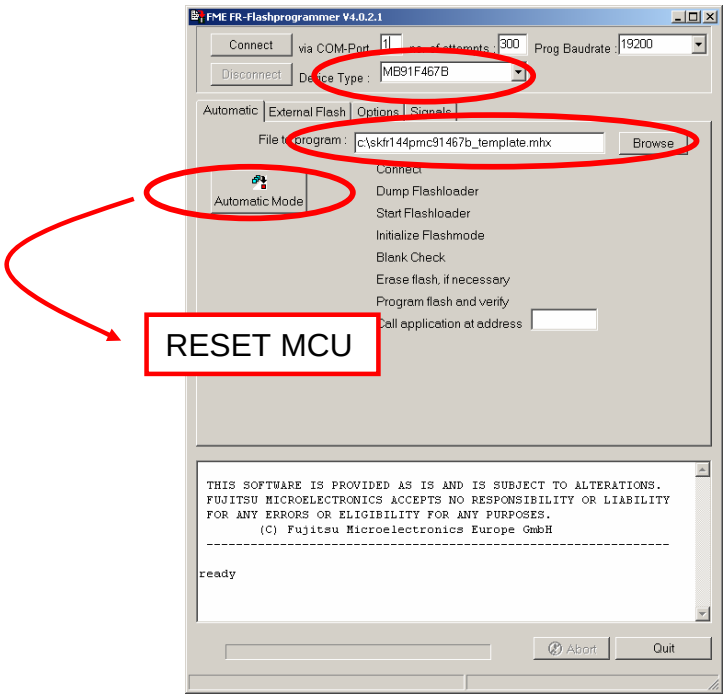
Program Download

- **Select the target microcontroller (MB91F467B)**
- **Choose the software example from the example ‘ABS‘-folder**
  (e.g. C:\…\skfr144pmc91467b_template-v10\STANDALONE\ABS\skfr144pmc91467b_template.mhx)
- **Choose „Automatic Mode“ and reset SK-FR144PMC-91467B**



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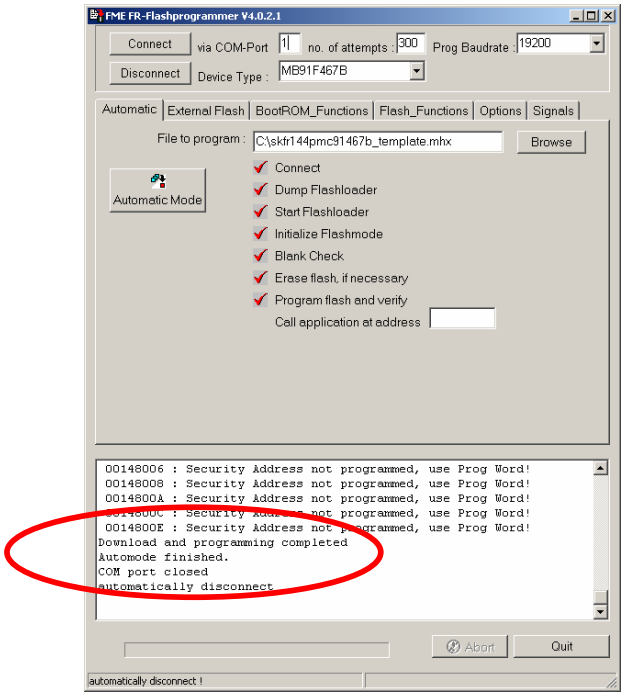
Program Download

After download has finished successfully

- **Close the MCU Flash programmer**
- **Press ‚Reset' on SK-FR-144PMC-91467B**



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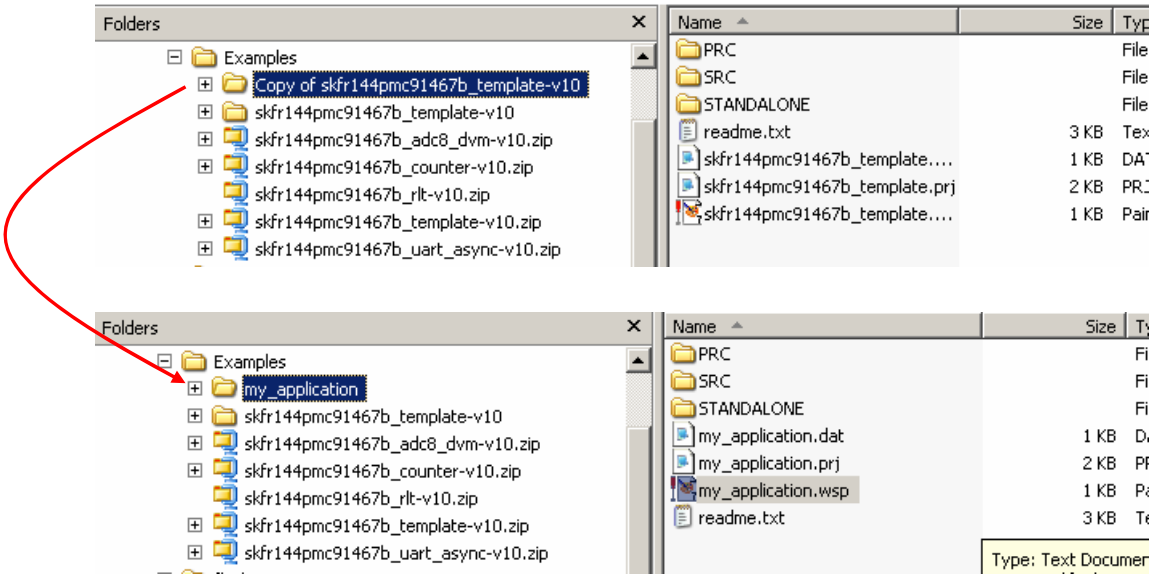
New Project

- **In order to start a new user project use the template project**
  - This project includes the startup code, header files, and vector table
- **Copy the folder ‘Template’ within the example folder**
  - Rename ‘Copy of skfr144pmc91467b_template-v10’ to ‘my_application’



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New Project

- **Enter ‘my_application’-folder**
  - Rename ‘skfr144pmc91467b_template‘ into ‘my_application.prj‘
  - Rename ‘skfr144pmc91467b_template‘ into ‘my_application.wsp’
- **Edit ’my_application.prj’**
  - rename ‘skfr144pmc91467b_template’ -> ‘my_application’
- **Edit ‘my_application.wsp’**
  - rename ‘skfr144pmc91467b_template’ -> ‘my_application’

my_application.wsp - Notepad

File Edit Format View Help

```
[CPUTYPE]
CpuSerise=911

[PrjFile]
Count=1
FILE-0=skfr144pmc91467b_template.prj
ActivePrj=skfr144pmc91467b_template.prj

[SubPrj-skfr144pmc91467b_template.prj]
Count=0


[DirInfo]
WSP=...\SK-FR-144PMC-91467B\Software\skfr144pmc91467b_template\
```

my_application.prj - Notepad

File Edit Format View Help

```
[Version]
DLLVer=02.5007.00.1
PRJVer=1


[DirInfo]
PRJ=...\SK-FR-144PMC-91467B\Software\skfr144pmc91467b_template\


[OPTIONFILE]
FILE=skfr144pmc91467b_template.dat


[MEMBER-STANDALONE]
FO=5
F1=0 m 1 STANDALONE\ABS\skfr144pmc91467b_template.abs
```


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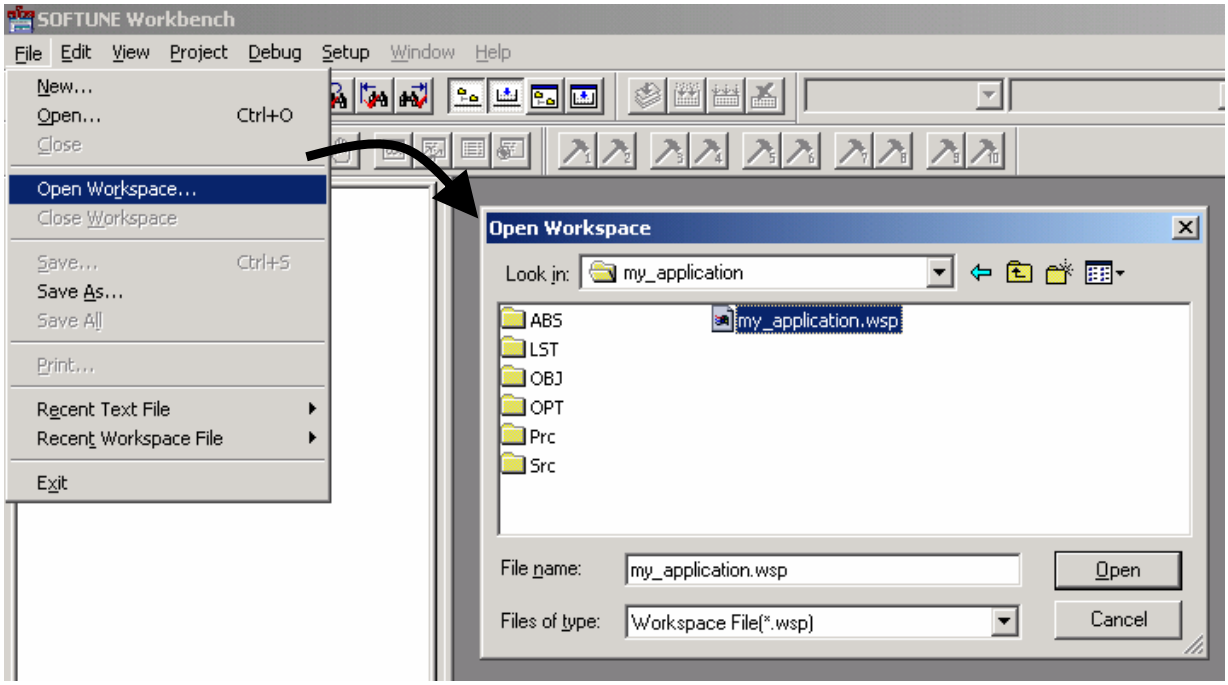
New Project

- **Start Softune Workbench and open your project**



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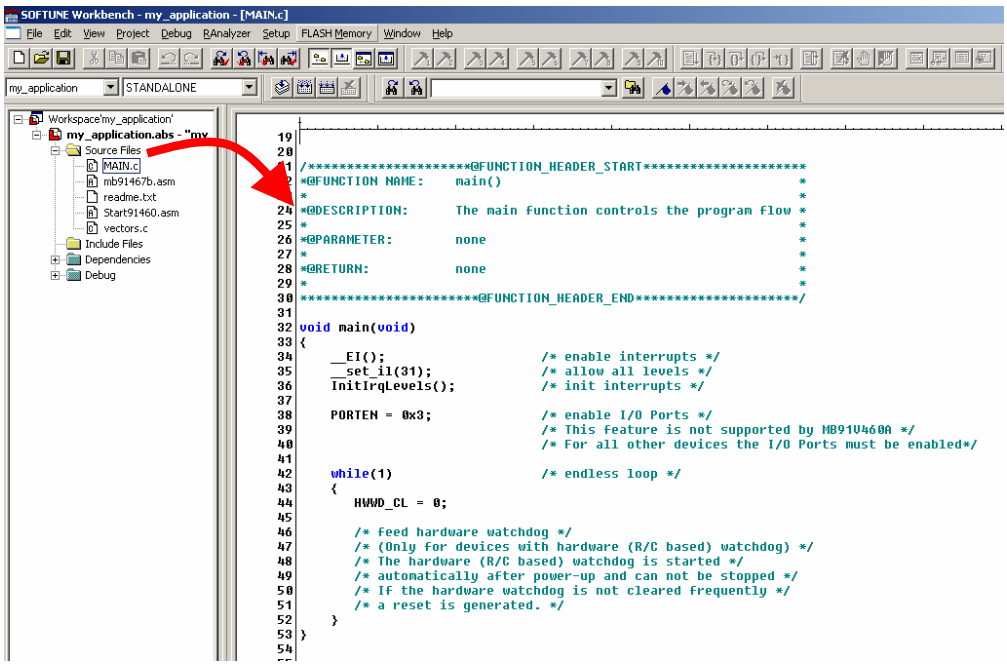
New Project

- **Write your application code**
  - `Start.asm` : Startup code
  - `Vectors.c` : Vector table
  - `Main.c` : Your application



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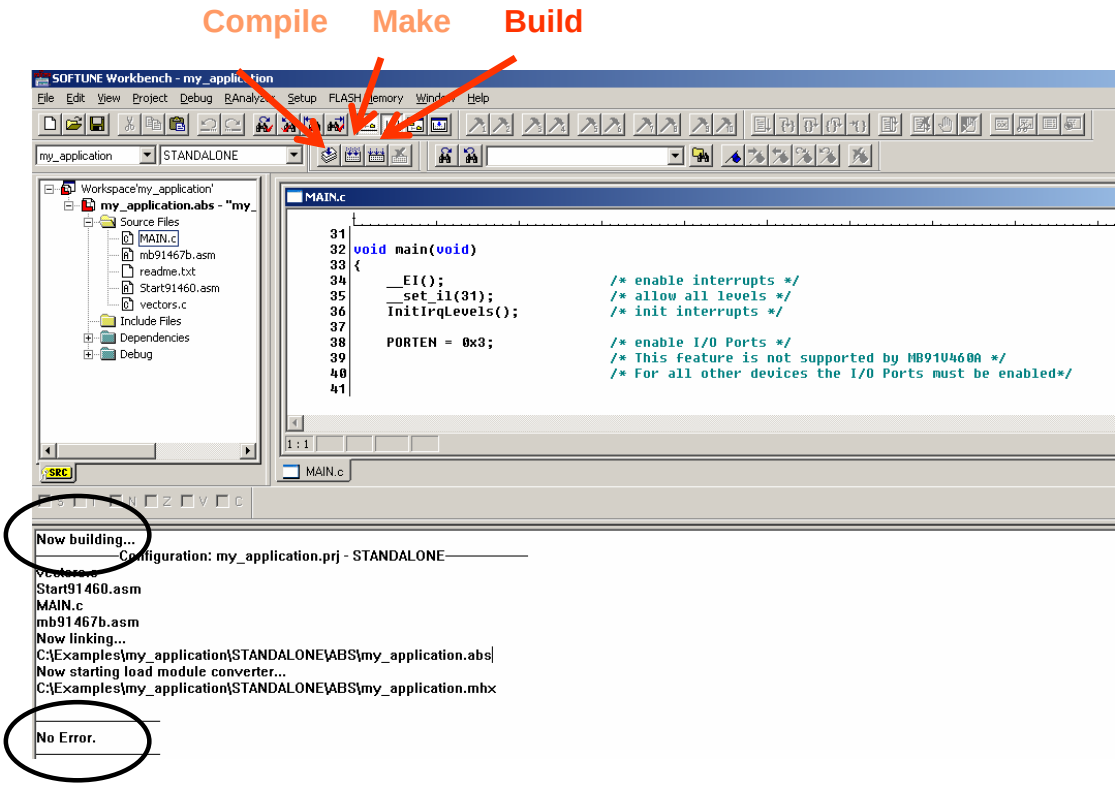
New Project

- **Compile and build your project**
  - Generates the MHX-file, which can be programmed to the Flash



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New Project

Congratulations!

- **You have finished your first project**

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Further Steps

- **In order to learn more about Fujitsu's microcontrollers**
  - Visit our microcontroller website
    - http://mcu.emea.fujitsu.com
  - See our application notes
    - http://mcu.emea.fujitsu.com/mcu_product/mcu_all_appnotes.htm
  - See our software examples
    - http://mcu.emea.fujitsu.com/mcu_product/mcu_all_software.htm

- **Contact your local distributor …**
  - for individual support
  - to order the latest 'Fujitsu Micros DVD' containing all information regarding Fujitsu's 8-bit, 16-bit, and 32-bit microcontrollers

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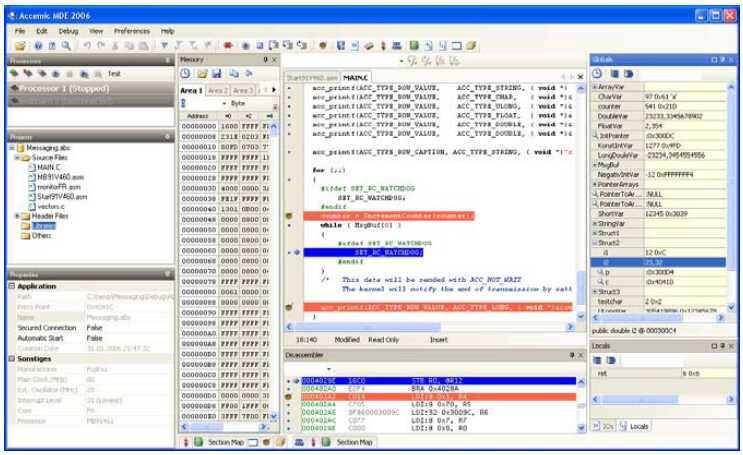
Accemic MDE

- **Accemic MDE (Monitor Debugging Environment)**
  - Accemic MDE provides powerful state-of-the-art debugging capabilities and a highly intuitive, easy-to-use visual interface.
    Accemic MDE is designed to deliver functionality that will reduce the time spent on testing and debugging. Accemic MDE is the first tool on the market allowing the Fujitsu FR microcontrollers to be debugged in the single-chip mode without using an emulator.
- **ROM-Monitor**
- **Two modes: ‚Debugging‘ / ‚Run and Break‘**



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Accemic MDE

- **Internal MCU-watchdog will automatically triggered while break**
- **Debug Windows**
  - Browser Window (Functions, Units, Interrupts, Variables, Registers)
  - Watch Window, Memory Window, Processor-Status, Stack, Disassembler
- **Message window to receive informations from microcontroller**
- **Connection: RS232, 38400 Baud**
- **Integrated Flash programming tool**
- **More information: Readme MDE 2006**
- **A demo version of Accemic MDE is available on separate CDROM**
- **Software Examples for Accemic MDE can be found on CDROM at:** CD-drive:\ …\Accemic\Samples\FR\MB91F467B
- **Further Information and demo-version of latest MDE products can be found here: www.accemic.com**

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Optional Tools

- **High-end evaluation board**
  - Starterkit SK-91467B-144PMC
  - Starterkit SK-91467C-144PMC (resource only)
- **Hardware emulator**
  - Emulator (MB2198-01)
  - DSU Cable (MB2198-10)
- **Adapter board**
  - EMA-MB91V460A-002B-80
- **Socket Adapter board**
  - EMA-MB91F467B-NLS-144M08
  - EMA-MB91F467B-LS-144M08
- **Programmer**
  - Conitec GALEP-4
- **Operating systems**

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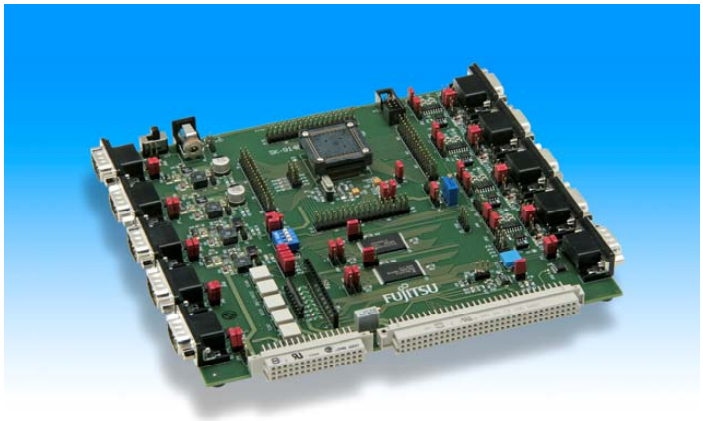
Evaluation Board

- **Starterkit SK-91467B-144PMC**
  - Soldered socket for MCU
  - All resources available for evaluation
  - In-Circuit serial Flash programming (UART4)
  - Four LIN-UART and six CAN interfaces on board
  - 3 V capable CAN, LIN and RS232 transceivers
  - 8 User LEDs, optional: alphanumeric standard LC-Display connectable instead of LEDs
  - Reset button
  - 5 User buttons
  - 8MB Flash, 2MB SRAM



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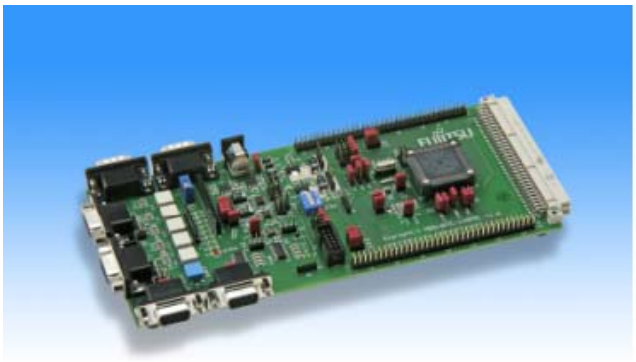
Evaluation Board

- **Starterkit SK-91467C-144PMC**
  - Capable to support MB91F467B (resource mode only)
  - Soldered socket for MCU
  - All resources available for evaluation
  - In-Circuit serial Flash programming (UART4)
  - Two RS232, two LIN and one CAN interface are usable simultaneously
  - 3 V capable CAN, LIN and RS232 transceivers
  - 8 User LEDs, optional: alphanumeric standard LC-Display connectable instead of LEDs
  - Reset button
  - 5 User buttons



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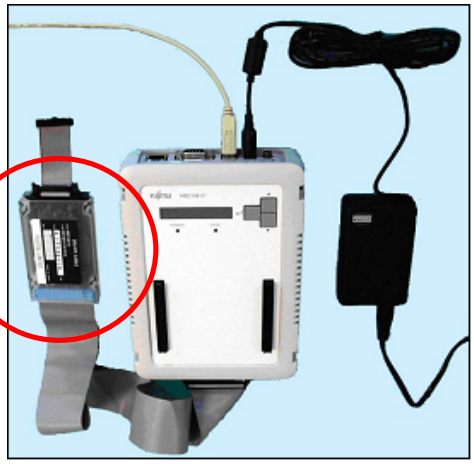
Hardware Emulator

- **In-Circuit emulator 2198-01**
  - USB, LAN, and RS232 communication interface
  - Connected to target system via standard Fujitsu probe cable
  - High speed operating frequency
  - 2052 code / 4 data event breakpoints
  - Sequential breakpoints (4 conditions / 3 levels)
  - Trace function
- **DSU Cable MB2198-10**
  - Debugging Support Unit



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EMA-MB91V460A-002B-80

- **EMA-MB91V460A-002B-80**
  - Includes MB91V460A
  - Connection via DSU-cable MB2198-10 to emulator main unit MB2198-01
  - 4 MB Emulation RAM
  - 64KB Trace Buffer
  - Common to all MB91460 derivatives

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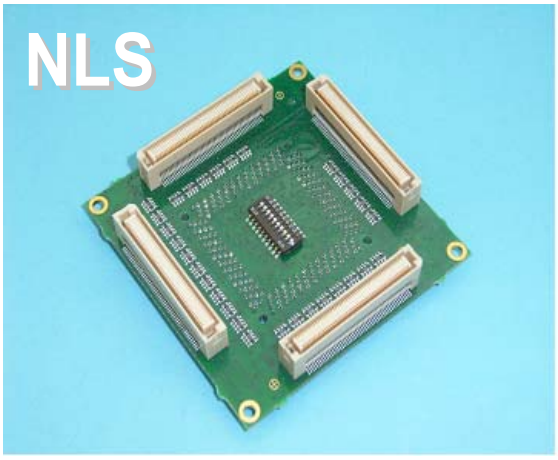
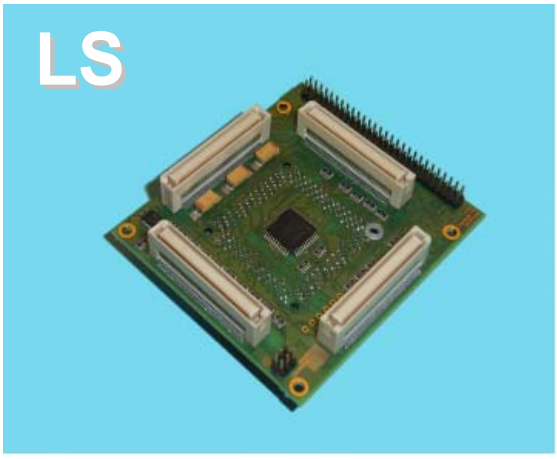
EMA Socket Adapter Board

- **EMA Socket Adapter Board**
  - For use with EMA-MB91V460A-002B-80
  - Dedicated to each Series
    - ‘NLS’ Version without Level Shifter
      - Operation for single supply voltage (5 V or only 3 V)
    - ‘LS’ Version includes Level Shifter
      - Operation for mixed supply mode only (VDD35=3V3, VDD5 =5V)
      - Restricted use of port directions for IO-Ports of ext. bus interface





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Programmer

- **GALEP IV**
  - Supports parallel programming
  - Supports serial synchronous and asynchronous programming
  - Optional programming cable for serial synchronous programming
  - Allows programming in volume production
  - www.conitec.com

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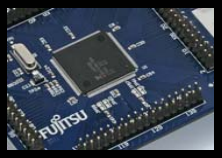
Operating Systems



- **ProOSEK®**
  - Real-time operating system, OSEK/VDX
  - www.elektrobit.com/
- **EUROS**
  - RTOS including TCP/IP, IrDA, IDE, CAN-Bus, CANopen, Profibus, etc.
  - www.euros-embedded.com
- **RTA-OSEK**
  - Realogy Real-Time Architect (RTA) ,OSEK, incl. timing analysis tool
  - www.etasgroup.com
- **embOS**
  - Small memory footprint for single-chip applications incl. PC viewer
  - www.segger.com
- **osCAN (OSEK/VDX)**
  - osCAN (OSEK/VDX) and further networking software CAN, LIN, FlexRay, etc.
  - www.vector-informatik.de

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- **European distributors**

ATeG-Anatec AG	**www.anatec.ch**
ATeG-Ineltek GmbH	**www.ineltek.de**
EBV Elektronik GmbH	**www.ebv.com**
Glyn GmbH & Co. KG	**www.glyn.de , www.glyn.ch**
Malpassi srl	**www.malpassi.it**
Melchioni Electronica SpA	**www.melchioni.it**
PN Electronics	**www.pne.fr**
Rutronik	**www.rutronik.com**
Sagitrón	**www.sagitron.es/english.htm**

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Fujitsu Microelectronics Europe

- **Germany (Headquarters)**
  - Pittlerstrasse 47, D-63225 Langen
  - Tel: (0 61 03) 69 00, Fax: (0 61 03) 69 01 22
- **France**
  - Immeuble Odyssee bat A, 3rd floor 2-12 chemin des Femmes, F-91300 Massy
  - Tel: (01) 55 21 00 40, Fax: (01) 55 21 00 41
- **Italy**
  - Palazzo Pitagora – Milano 3 City, Via Ludovico il Moro 4B, I-20080 Basiglio, Milano
  - Tel: (02) 90 45 02 1, Fax: (02) 90 75 00 87
- **United Kingdom**
  - Network House, Norreys Drive, Maidenhead, Berkshire SL6 4FJ
  - Tel: (01628) 50 46 00, Fax: (01628) 50 46 66

- **World Wide Web**
  - http://emea.fujitsu.com/microelectronics
  - http://mcu.emea.fujitsu.com/
  - Contact: micro_info@fme.fujitsu.com

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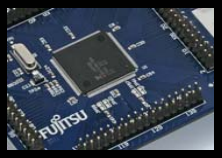
Recycling



- **Gültig für EU-Länder:**
  - Gemäß der Europäischen WEEE-Richtlinie und deren Umsetzung in landesspezifische Gesetze nehmen wir dieses Gerät wieder zurück.
  - Zur Entsorgung schicken Sie das Gerät bitte an die folgende Adresse:

- **Valid for European Union Countries:**
  - According to the European WEEE-Directive and its implementation into national laws we take this device back.
  - For disposal please send the device to the following address:

Fujitsu Microelectronics Europe GmbH
Warehouse/Disposal
Monzastraße 4a
D-63225 Langen

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‘SK-FR-144PMC-91467B’-CD Link-List

- Software
  - Softune Workbench
  - MCU Flash programmer
  - SKwizard
- Software Examples
  - skfr144pmc91467b_template
  - skfr144pmc91467b_counter
  - skfr144pmc91467b_uart_async
  - skfr144pmc91467b_adc8_dvm
  - skfr144pmc91467b_rlt

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‘SK-FR-144PMC-91467B’-CD Link-List

- Documents
  - Schematic ‘SK-FR-144PMC-91467B’
  - Data sheet MB91467BA
  - Hardware manual MB91460 Series
  - Hardware manual correction
  - AppNote ‘mb91v460_getting_started’
  - AppNote ‘start91460’
  - Customer Information: External-Interrupt
  - Customer Information: C-CAN – Report
  - Customer Information: Bus-IF change

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