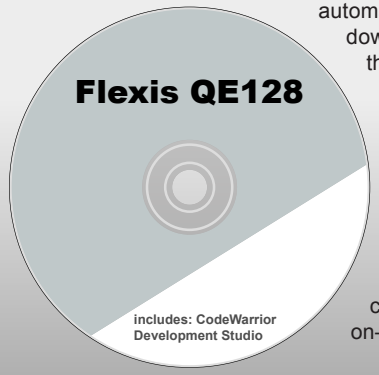
QE128 Quick Start Guide

1 Install CodeWarrior™ Development Studio

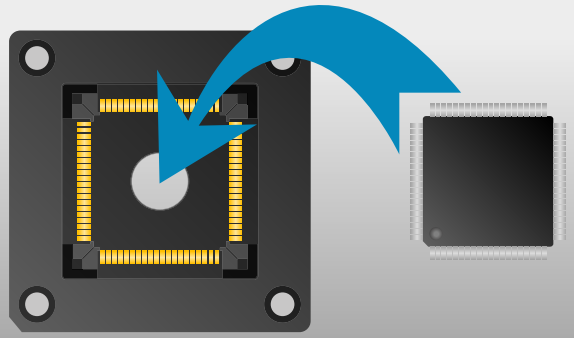
Before connecting the Evaluation Board to the PC, it is recommended that you install CodeWarrior first, so that the appropriate USB driver will be automatically found by Windows when you connect the Evaluation Board.



To install the CodeWarrior Development Studio, insert the Flexis QE128 DVD-ROM into your computer's DVD-ROM drive. A startup window will automatically appear. Follow the on-screen instructions.

2 Insert Micro in Socket

Insert either the MC9S08QE128 or MCF51QE128 microcontroller into the socket, using the provided pick-up vacuum pump. Please verify the correct alignment of microcontroller pin 1 with socket pin 1.

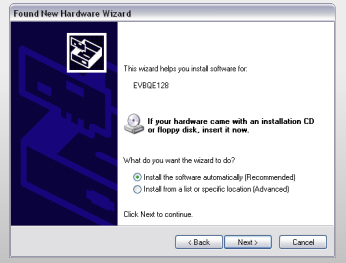


3 Board Connection

Power the board through either the barrel connector or the USB connector, making sure that the "POWER SEL" jumper selects the correct power source. Slide the "ON-OFF" switch to the "ON" position. The "POWER" LED will turn on.

Insert one end of the USB cable into a free USB port of the PC.

Insert the other end of the USB cable into the USB connector on the board.



The first time the board is connected to the PC, Windows recognizes the instrument and starts the "Found New Hardware Wizard" procedure, asking you to specify the driver to use for the instrument. Follow the Wizard steps, choosing to install the software automatically when requested.

4 Standalone Mode

In standalone mode, no PC connection is required, unless you are powering the board through USB. Both microcontrollers are factory programmed with the same sample application.

To run the built-in example:

- Ensure that all of the jumpers in the "I/O" sections are inserted.
- Press the "PTD4" push-button. The value of the ADP0/PTA0 potentiometer will be displayed on the PTE[7..0] LEDs.
- Press the "PTD5" push-button. The value of the light sensor will be displayed on the PTE[7..0] LEDs.
- Press the "PTD6" push-button. The APD0/PTA0 potentiometer will vary the frequency of the sound played by the buzzer.
- Press the "PTD7" push-button. The value of the temperature sensor will be displayed on the PTE[7..0] LEDs.

5 Standalone Mode - Part 2

The output of the potentiometer, light sensor and temperature sensor is also sent to the host PC (if connected) through the virtual COM port over the USB connection.

To see the data sent to the virtual COM port, do the following:

- Ensure that the J206 jumpers ("COM1 ENA") select the "MDI" position;
- Connect the board to the PC through the USB connection;
- Check the "Device Manager" for the correct port number;
- Start your terminal utility (e.g. HyperTerminal) with these parameters:

Baud rate: 9600
Data bits: 8
Parity: None
Stop bits: 1
Flow control: None

```
Buzzer frequency is (Hz):4089
Buzzer frequency is (Hz):4111
Buzzer frequency is (Hz):4089
Buzzer frequency is (Hz):4111
value of the Light Sensor is:F5
value of the Light Sensor is:16
value of the Light Sensor is:06
value of the Potentiometer is:C2
value of the Potentiometer is:B2
value of the Potentiometer is:A2
```

6 Congratulations!

For an in-depth guide of all of the user interface features, read the User's Manual present on the DVD.

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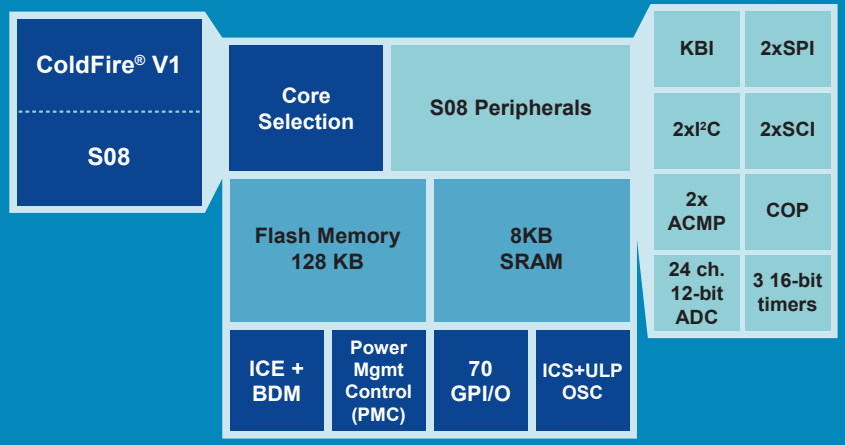
Component References

COMPONENT	RELATED MCU PIN
PTD4 SWITCH (SW301)	PTD4
PTD5 SWITCH (SW302)	PTD5
PTD6 SWITCH (SW303)	PTD6
PTD7 SWITCH (SW304)	PTD7
RESET SWITCH (SW305)	PTA5
PTE7 LED (LD301)	PTE7
PTE6 LED (LD302)	PTE6
PTE5 LED (LD303)	PTE5
PTE4 LED (LD304)	PTE4
PTE3 LED (LD305)	PTE3
PTE2 LED (LD306)	PTE2
PTE1 LED (LD307)	PTE1
PTE0 LED (LD308)	PTE0
RSTO LED (LD309)	PTC4
ACMP2O LED (LD310)	PTC5/ACMP2O
POTENTIOMETER (P301)	PTC6/ACMP2+ & PTA0/ADP0/ACMP1+
LIGHT SENSOR (R317)	PTA1/ADP1/ACMP1-
TEMPERATURE SENSOR (R319)	PTC7/ACMP2- & PTG7/ADP23
RS-232_1 RX / MDI RX (J209 / J401)	PTB0
RS-232_1 TX / MDI TX (J209 / J401)	PTB1
RS-232_2 RX (J210)	PTC6/ACMP2+
RS-232_2 TX (J210)	PTC7/ACMP2-
BUZZER (BZ301)	PTC3/TPM3CH3
LCD PORT (J208)	PTD0 & PTD1 & PTD2 & PTD3
IIC1 PULL-UPS (J303)	PTB6 & PTB7
IIC2 PULL-UPS (J304)	PTH7 & PTH6

Highlighted pin/lines are shared between two I/O components

Block Diagram

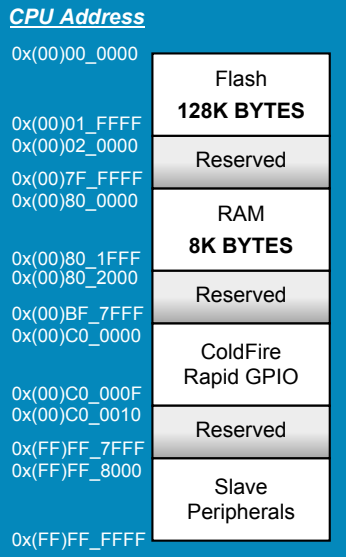


Important I/O Registers *

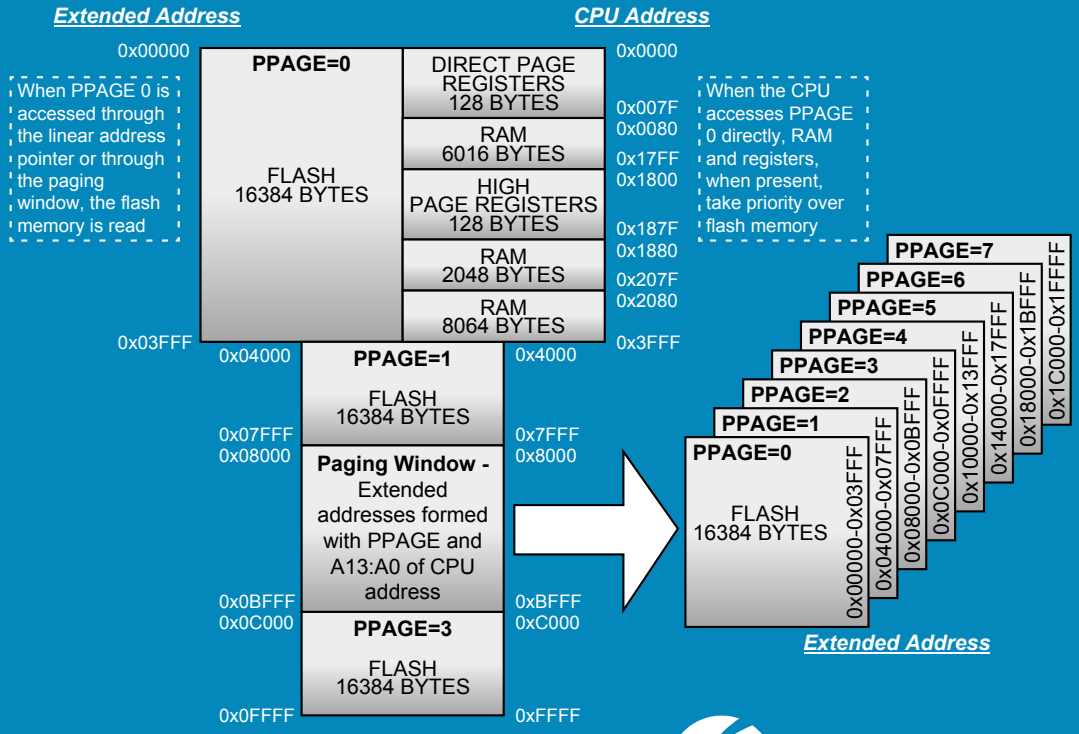
PERIPHERAL	REGISTER NAME
Analog-to-Digital Converter	ADCSC1
	ADCSC2
	ADCRH
	ADCRL
	ADCCFG
Timer/Pulse-Width Modulator	TPMxSC
	TPMxCNTH
	TPMxCNTL
	TPMxCnSC
	TPMxCnVH
	TPMxCnVL
Serial Communications Interface	SCIxBDH
	SCIxBDL
	SCIxC1
	SCIxC2
	SCIxS1
	SCIxS2
	SCIxD

* Related to the preprogrammed demo example

MCF51QE128 Memory Map



MC9S08QE128 Memory Map



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