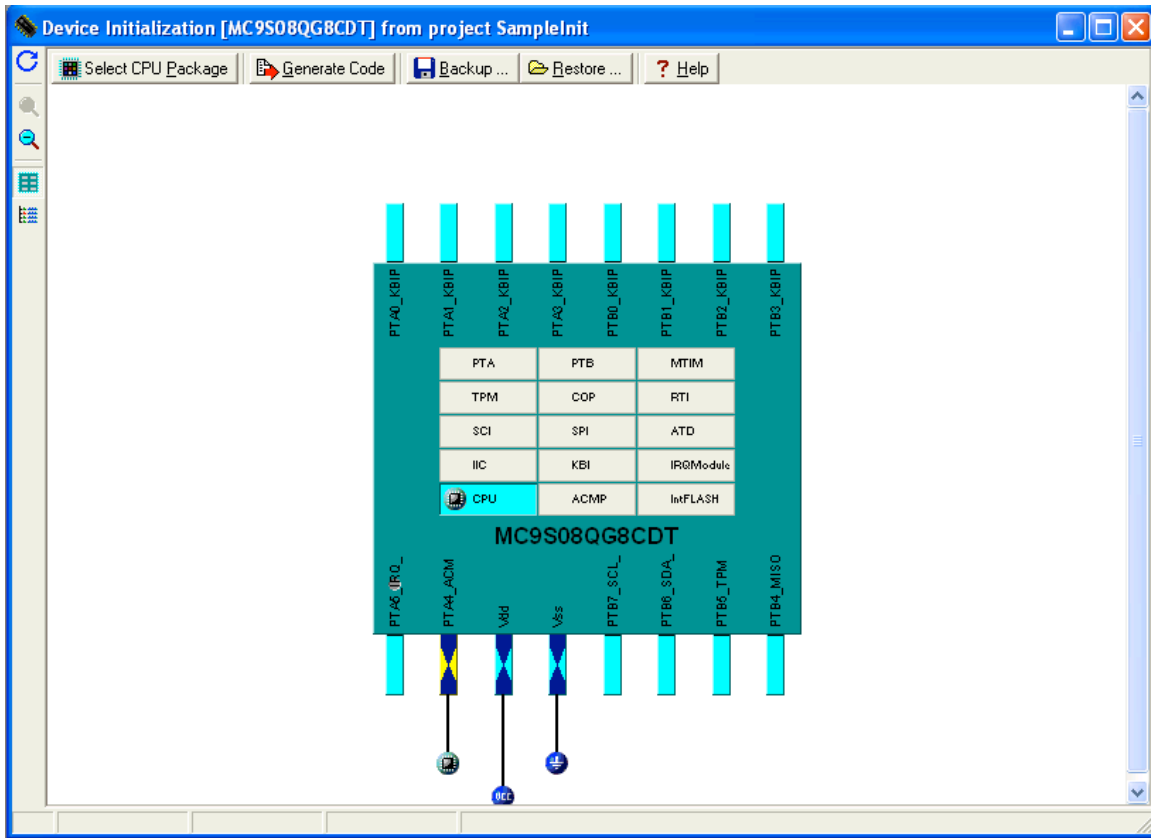


Use of "Processor Init"

This is a tool for generating code to initialize stuff on your microcontroller using a menu approach instead of looking up things in the manual and writing C code. When you are creating a new project, choose to use the tool. You then get a new window after the usual startups steps for device initialization.



At this stage, the only pins "committed" are power and ground (Vdd and Vss) as well as the debugger pin. So, from this point click on the "PTB" box in the interior to initialize Port B. A menu comes up that lets you configure pins 6 and 7 to be the output pins going to LED1 and LED2. As I have it shown, the pins are configured for "high drive strength". Similarly, Port A pins 2 and 3 can be configured to be the inputs from switch 1 and 2. The black and white dots aright show 1's and 0's that need to be put into the various control registers associated with the port. For this simple example, that's all that will be done, leaving the remaining pins uncommitted. The diagram is modified to show the use of the pins. Here we see that now pins 5,6, 13, and 14 are connected to digital inputs or outputs.

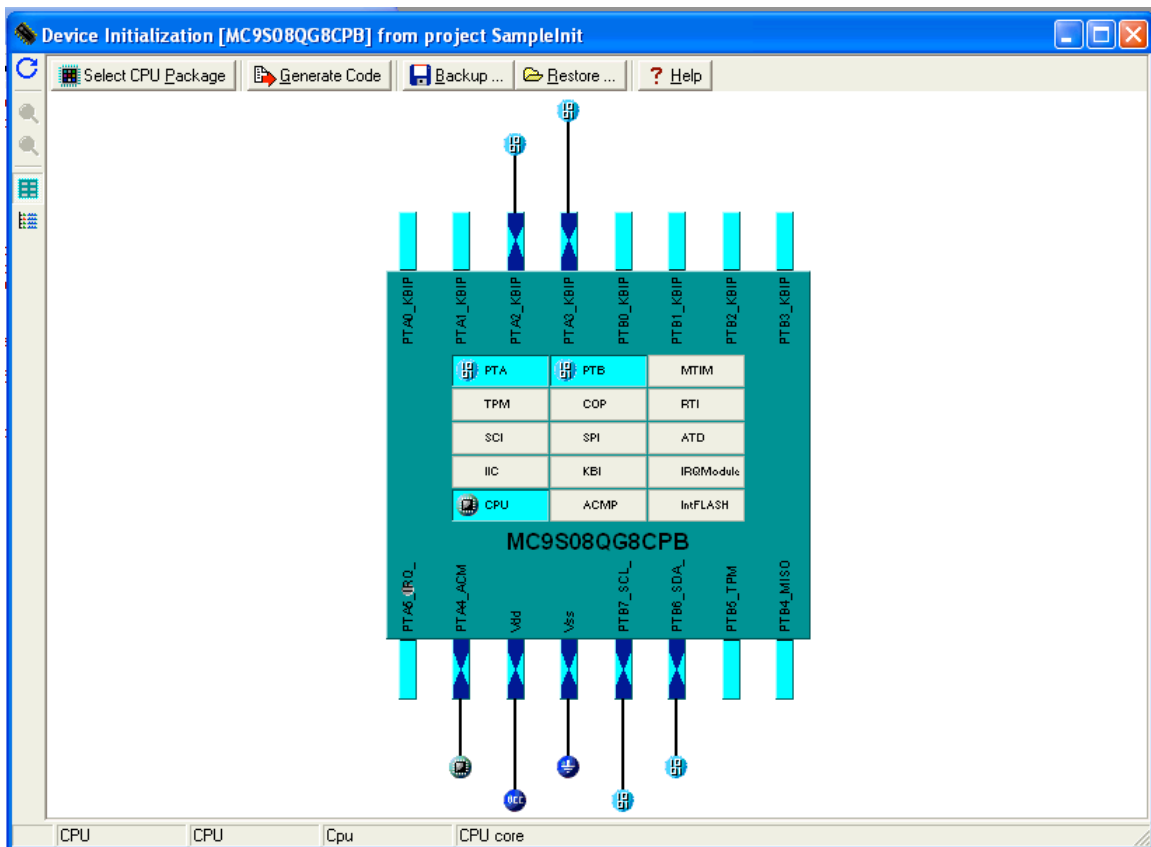
Ultimately, after all of this "device initialization" is done, you click the button to "generate code". This creates two new files that now are included in your project which you can call to set up the pins properly. (There are some special provisions and warnings you need to pay attention to.)

Inspector Init_GPIO

Bean Parameters			Register Details			
Device	PTB	PTB	Name	Address	Init. value	Register Map
Settings	Individual pins		PTBD	0x0002	00 H	●●●●●●●●
Port control	Enabled		PTBDD	0x0003	C0 H	●●●●●●●●
Pins	Enabled		KBIPE	0x000D	00 H	●●●●●●●●
Pin0	Disabled	PTB0_KBIP4_RxD_ADP4	PTBPE	0x1844	00 H	●●●●●●●●
Pin1	Disabled	PTB1_KBIP5_TxD_ADP5	PTBSE	0x1845	FF H	●●●●●●●●
Pin2	Disabled	PTB2_KBIP6_SPSCK_ADP6	PTBDS	0x1846	C0 H	●●●●●●●●
Pin3	Disabled	PTB3_KBIP7_MOSI_ADP7				
Pin4	Disabled	PTB4_MISO				
Pin5	Disabled	PTB5_TPMCH1_SS				
Pin6	Enabled	PTB6_SDA_XTAL				
Pin	PTB6_SDA_XTAL	PTB6_SDA_XTAL				
Direction	Output					
Output value	0					
Pull resistor	no pull resistor	no pull resistor				
Open drain	push-pull	push-pull				
Slew rate control for PTB6	yes					
Drive strength for PTB6	High					
Pin7	Enabled	PTB7_SCL_EXTAL				
Pin	PTB7_SCL_EXTAL	PTB7_SCL_EXTAL				
Direction	Output					
Output value	no initialization					
Pull resistor	no pull resistor	no pull resistor				
Open drain	push-pull	push-pull				
Slew rate control for PTB7	yes					
Drive strength for PTB7	High					

Register Map Legend: ● 1 ○ 0 ● undefined, reserved, read-only

Disable Peripheral Initialization



The following are MCUinit.h and MCUInit.c. You should not modify these files yourself (or other auto-generated files) because if you ever run the initialization program again, you wipe out any changes you might have made.

```

/*
** #####
** This code is generated by the Device Initialization Tool.
** It is overwritten during code generation.
** USER MODIFICATION ARE NOT PRESERVED IN THIS FILE.
**
** Project : SampleInit
** Processor : MC9S08QG8CPB
** Version : Bean 01.252, Driver 01.04, CPU db: 2.87.119
** Datasheet : MC9S08QG8 Rev. 2 6/2006
** Date/Time : 2/1/2012, 11:24 PM
** Abstract :
** This module contains device initialization code
** for selected on-chip peripherals.
** Contents :
** Function "MCU_init" initializes selected peripherals
**
** (c) Copyright UNIS, spol. s r.o. 1997-2006
** UNIS, spol s r.o.
** Jundrovska 33
** 624 00 Brno
** Czech Republic
** http : www.processorexpert.com
** mail : info@processorexpert.com
** #####
*/

#ifndef __SampleInit_H
#define __SampleInit_H 1

/* Include shared modules, which are used for whole project */

/* User declarations and definitions */
/* Code, declarations and definitions here will be preserved during code generation */
/* End of user declarations and definitions */

extern void MCU_init(void);
/*
** =====
** Method : MCU_init (bean MC9S08QG8_16)
**
** Description :
** Device initialization code for selected peripherals.
** =====
*/

/* END SampleInit */

#endif
/*
** #####
** This file was created by UNIS Processor Expert 3.01 [03.92]
** for the Freescale HCS08 series of microcontrollers.
** #####
*/

```

```

/*
** #####
** This code is generated by the Device Initialization Tool.
** It is overwritten during code generation.
** USER MODIFICATION ARE PRESERVED ONLY INSIDE INTERRUPT SERVICE ROUTINES
** OR EXPLICITLY MARKED SECTIONS
**
** Project : SampleInit
** Processor : MC9S08QG8CPB
** Version : Bean 01.252, Driver 01.04, CPU db: 2.87.119
** Datasheet : MC9S08QG8 Rev. 2 6/2006
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** Czech Republic
** http : www.processorexpert.com
** mail : info@processorexpert.com
** #####
*/

/* MODULE MCUinit */

#include <MC9S08QG8.h> /* I/O map for MC9S08QG8CPB */
#include "MCUinit.h"

/* User declarations and definitions */
/* Code, declarations and definitions here will be preserved during code generation */
/* End of user declarations and definitions */

/*
** =====
** Method : MCU_init (bean MC9S08QG8_16)
**
** Description :
** Device initialization code for selected peripherals.
** =====
*/
void MCU_init(void)
{
/* ### MC9S08QG8_16 "Cpu" init code ... */
/* PE initialization code after reset */
/* Common initialization of the write once registers */
/* SOPT1: COPE=0,COPT=1,STOPE=0,BKGDPE=1,RSTPE=0 */
SOPT1 = 0x52;
/* SPMSC1: LVDV=0,LVDACK=0,LVDIE=0,LVDRE=1,LVDSE=1,LVDE=1,BGBE=0 */
SPMSC1 = 0x1C;
/* SPMSC2: PDF=0,PPDF=0,PPDACK=0,PDC=0,PPDC=0 */
SPMSC2 = 0x00;
/* SPMSC3: LVDV=0,LVWV=0 */
SPMSC3 &= (unsigned char)0x30;
/* System clock initialization */
ICSTRM = *(unsigned char*far)0xFFAF; /* Initialize ICSTRM register from a non volatile
memory */
ICSSC = *(unsigned char*far)0xFFAE; /* Initialize ICSSC register from a non volatile
memory */
/* ICSC1: CLKS=0,RDIV=0,IREFS=1,IRCLKEN=0,IREFSTEN=0 */
ICSC1 = 0x04; /* Initialization of the ICS control register 1 */
/* ICSC2: BDIV=1,RANGE=0,HGO=0,LP=0,EREFS=0,ERCLKEN=0,EREFSTEN=0 */
ICSC2 = 0x40; /* Initialization of the ICS control register 2 */
/* Common initialization of the CPU registers */
/* PTASE: PTASE4=1,PTASE3=1,PTASE2=1,PTASE1=1,PTASE0=1 */
PTASE |= (unsigned char)0x1F;
/* PTBSE: PTBSE7=1,PTBSE6=1,PTBSE5=1,PTBSE4=1,PTBSE3=1,PTBSE2=1,PTBSE1=1,PTBSE0=1 */
PTBSE = 0xFF;
}

```

```

/* PTADS: PTADS5=0,PTADS4=0,PTADS3=0,PTADS2=0,PTADS1=0,PTADS0=0 */
PTADS = 0x00;
/* PTBDS: PTBDS7=1,PTBDS6=1,PTBDS5=0,PTBDS4=0,PTBDS3=0,PTBDS2=0,PTBDS1=0,PTBDS0=0 */
PTBDS = 0xC0;
/* ### Init_GPIO init code */
/* PTBD: PTBD6=0 */
PTBD &= (unsigned char)~0x40;
/* PTBPE: PTBPE7=0,PTBPE6=0 */
PTBPE &= (unsigned char)~0xC0;
/* PTBDD: PTBDD7=1,PTBDD6=1 */
PTBDD |= (unsigned char)0xC0;
/* ### Init_GPIO init code */
/* PTAPE: PTAPE3=1,PTAPE2=1 */
PTAPE |= (unsigned char)0x0C;
/* PTADD: PTADD3=0,PTADD2=0 */
PTADD &= (unsigned char)~0x0C;
/* ### */
asm CLI; /* Enable interrupts */
} /*MCU_init*/

```

```

/* Initialization of the CPU registers in FLASH */

```

```

/* NVPROT: FPS=0x7F,FPDIS=1 */
const unsigned char NVPROT_INIT @0x0000FFBD = 0xFF;

/* NVOPT: KEYEN=0,FNORED=1,SEC01=1,SEC00=0 */
const unsigned char NVOPT_INIT @0x0000FFBF = 0x7E;

```

```

extern near void _Startup(void);

```

```

/* Interrupt vector table */
#ifndef UNASSIGNED_ISR
#define UNASSIGNED_ISR 0xFFFF /* unassigned interrupt service routine */
#endif

```

```

void (* near const _vect[])() @0xFFD0 = { /* Interrupt vector table */
    UNASSIGNED_ISR, /* Int.no. 23 Vrti (at FFD0)
Unassigned */
    UNASSIGNED_ISR, /* Int.no. 22 Reserved2 (at FFD2)
Unassigned */
    UNASSIGNED_ISR, /* Int.no. 21 Reserved3 (at FFD4)
Unassigned */
    UNASSIGNED_ISR, /* Int.no. 20 Vacmp (at FFD6)
Unassigned */
    UNASSIGNED_ISR, /* Int.no. 19 Vadc (at FFD8)
Unassigned */
    UNASSIGNED_ISR, /* Int.no. 18 Vkeyboard (at FFDA)
Unassigned */
    UNASSIGNED_ISR, /* Int.no. 17 Viic (at FFDC)
Unassigned */
    UNASSIGNED_ISR, /* Int.no. 16 Vscitx (at FFDE)
Unassigned */
    UNASSIGNED_ISR, /* Int.no. 15 Vscirx (at FFE0)
Unassigned */
    UNASSIGNED_ISR, /* Int.no. 14 Vscierr (at FFE2)
Unassigned */
    UNASSIGNED_ISR, /* Int.no. 13 Vspi (at FFE4)
Unassigned */
    UNASSIGNED_ISR, /* Int.no. 12 Vmtim (at FFE6)
Unassigned */
    UNASSIGNED_ISR, /* Int.no. 11 Reserved13 (at FFE8)
Unassigned */
    UNASSIGNED_ISR, /* Int.no. 10 Reserved14 (at FFEA)
Unassigned */
    UNASSIGNED_ISR, /* Int.no. 9 Reserved15 (at FFEC)
Unassigned */
    UNASSIGNED_ISR, /* Int.no. 8 Reserved16 (at FFEE)
Unassigned */

```

```

        UNASSIGNED_ISR,          /* Int.no. 7 Vtpmovf (at FFF0)
Unassigned */
        UNASSIGNED_ISR,          /* Int.no. 6 Vtpmch1 (at FFF2)
Unassigned */
        UNASSIGNED_ISR,          /* Int.no. 5 Vtpmch0 (at FFF4)
Unassigned */
        UNASSIGNED_ISR,          /* Int.no. 4 Reserved20 (at FFF6)
Unassigned */
        UNASSIGNED_ISR,          /* Int.no. 3 Vlvd (at FFF8)
Unassigned */
        UNASSIGNED_ISR,          /* Int.no. 2 Virq (at FFFA)
Unassigned */
        UNASSIGNED_ISR,          /* Int.no. 1 Vswi (at FFFC)
Unassigned */
        _Startup                  /* Int.no. 0 Vreset (at FFFE)
Reset vector */
};

```

```

/* END MCUinit */

```

```

/*
** #####
**
**      This file was created by UNIS Processor Expert 3.01 [03.92]
**      for the Freescale HCS08 series of microcontrollers.
**
** #####
*/

```