

## startup\_ccs\_keyboard.c

```
1 //*****
2 //
3 // startup_ccs.c - Startup code for use with TI's Code Composer Studio.
4 //
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18 // CIRCUMSTANCES, BE LIABLE FOR SPECIAL, INCIDENTAL, OR CONSEQUENTIAL
19 // DAMAGES, FOR ANY REASON WHATSOEVER.
20 //
21 // This is part of revision 1.1 of the EK-TM4C123GXL Firmware Package.
22 //
23 //*****
24
25 #include <stdint.h>
26 #include "hw_nvic.h"
27 #include "hw_types.h"
28
29 //*****
30 //
31 // Forward declaration of the default fault handlers.
32 //
33 //*****
34 void ResetISR(void);
35 static void NmiSR(void);
36 static void FaultISR(void);
37 static void IntDefaultHandler(void);
38
39 //*****
40 //
41 // External declaration for the reset handler that is to be called when the
42 // processor is started
43 //
44 //*****
45 extern void _c_int00(void);
46
47 //*****
48 //
49 // Linker variable that marks the top of the stack.
50 //
51 //*****
52 extern uint32_t __STACK_TOP;
53
54 //*****
55 //
56 // The vector table. Note that the proper constructs must be placed on this to
```

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```
57// ensure that it ends up at physical address 0x0000.0000 or at the start of
58// the program if located at a start address other than 0.
59//
60//*****
61
62extern void Uart0Isr(void);           // Refer to UART0 handler in keyboard.c
63extern void keyboardIsr(void);       // Refer to TIMER1 handler in keyboard.c
64
65#pragma DATA_SECTION(g_pfnVectors, ".intvecs")
66void (* const g_pfnVectors[])(void) =
67{
68    (void (*)(void))((uint32_t)&__STACK_TOP),
69    // The initial stack pointer
70    ResetISR,                       // The reset handler
71    NmiSR,                          // The NMI handler
72    FaultISR,                       // The hard fault handler
73    IntDefaultHandler,              // The MPU fault handler
74    IntDefaultHandler,              // The bus fault handler
75    IntDefaultHandler,              // The usage fault handler
76    0,                              // Reserved
77    0,                              // Reserved
78    0,                              // Reserved
79    0,                              // Reserved
80    IntDefaultHandler,              // SVCall handler
81    IntDefaultHandler,              // Debug monitor handler
82    0,                              // Reserved
83    IntDefaultHandler,              // The PendSV handler
84    IntDefaultHandler,              // The SysTick handler
85    IntDefaultHandler,              // GPIO Port A
86    IntDefaultHandler,              // GPIO Port B
87    IntDefaultHandler,              // GPIO Port C
88    IntDefaultHandler,              // GPIO Port D
89    IntDefaultHandler,              // GPIO Port E
90    Uart0Isr,                       // UART0 Rx and Tx (modified)
91    IntDefaultHandler,              // UART1 Rx and Tx
92    IntDefaultHandler,              // SSI0 Rx and Tx
93    IntDefaultHandler,              // I2C0 Master and Slave
94    IntDefaultHandler,              // PWM Fault
95    IntDefaultHandler,              // PWM Generator 0
96    IntDefaultHandler,              // PWM Generator 1
97    IntDefaultHandler,              // PWM Generator 2
98    IntDefaultHandler,              // Quadrature Encoder 0
99    IntDefaultHandler,              // ADC Sequence 0
100    IntDefaultHandler,              // ADC Sequence 1
101    IntDefaultHandler,              // ADC Sequence 2
102    IntDefaultHandler,              // ADC Sequence 3
103    IntDefaultHandler,              // Watchdog timer
104    IntDefaultHandler,              // Timer 0 subtimer A
105    IntDefaultHandler,              // Timer 0 subtimer B
106    keyboardIsr,                    // Timer 1 subtimer A
107    IntDefaultHandler,              // Timer 1 subtimer B
108    IntDefaultHandler,              // Timer 2 subtimer A
109    IntDefaultHandler,              // Timer 2 subtimer B
110    IntDefaultHandler,              // Analog Comparator 0
111    IntDefaultHandler,              // Analog Comparator 1
112    IntDefaultHandler,              // Analog Comparator 2
```

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```
113     IntDefaultHandler,           // System Control (PLL, OSC, BO)
114     IntDefaultHandler,           // FLASH Control
115     IntDefaultHandler,           // GPIO Port F
116     IntDefaultHandler,           // GPIO Port G
117     IntDefaultHandler,           // GPIO Port H
118     IntDefaultHandler,           // UART2 Rx and Tx
119     IntDefaultHandler,           // SSI1 Rx and Tx
120     IntDefaultHandler,           // Timer 3 subtimer A
121     IntDefaultHandler,           // Timer 3 subtimer B
122     IntDefaultHandler,           // I2C1 Master and Slave
123     IntDefaultHandler,           // Quadrature Encoder 1
124     IntDefaultHandler,           // CAN0
125     IntDefaultHandler,           // CAN1
126     IntDefaultHandler,           // CAN2
127     0,                           // Reserved
128     IntDefaultHandler,           // Hibernate
129     IntDefaultHandler,           // USB0
130     IntDefaultHandler,           // PWM Generator 3
131     IntDefaultHandler,           // uDMA Software Transfer
132     IntDefaultHandler,           // uDMA Error
133     IntDefaultHandler,           // ADC1 Sequence 0
134     IntDefaultHandler,           // ADC1 Sequence 1
135     IntDefaultHandler,           // ADC1 Sequence 2
136     IntDefaultHandler,           // ADC1 Sequence 3
137     0,                           // Reserved
138     0,                           // Reserved
139     IntDefaultHandler,           // GPIO Port J
140     IntDefaultHandler,           // GPIO Port K
141     IntDefaultHandler,           // GPIO Port L
142     IntDefaultHandler,           // SSI2 Rx and Tx
143     IntDefaultHandler,           // SSI3 Rx and Tx
144     IntDefaultHandler,           // UART3 Rx and Tx
145     IntDefaultHandler,           // UART4 Rx and Tx
146     IntDefaultHandler,           // UART5 Rx and Tx
147     IntDefaultHandler,           // UART6 Rx and Tx
148     IntDefaultHandler,           // UART7 Rx and Tx
149     0,                           // Reserved
150     0,                           // Reserved
151     0,                           // Reserved
152     0,                           // Reserved
153     IntDefaultHandler,           // I2C2 Master and Slave
154     IntDefaultHandler,           // I2C3 Master and Slave
155     IntDefaultHandler,           // Timer 4 subtimer A
156     IntDefaultHandler,           // Timer 4 subtimer B
157     0,                           // Reserved
158     0,                           // Reserved
159     0,                           // Reserved
160     0,                           // Reserved
161     0,                           // Reserved
162     0,                           // Reserved
163     0,                           // Reserved
164     0,                           // Reserved
165     0,                           // Reserved
166     0,                           // Reserved
167     0,                           // Reserved
168     0,                           // Reserved
```

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```

169     0, // Reserved
170     0, // Reserved
171     0, // Reserved
172     0, // Reserved
173     0, // Reserved
174     0, // Reserved
175     0, // Reserved
176     0, // Reserved
177     IntDefaultHandler, // Timer 5 subtimer A
178     IntDefaultHandler, // Timer 5 subtimer B
179     IntDefaultHandler, // Wide Timer 0 subtimer A
180     IntDefaultHandler, // Wide Timer 0 subtimer B
181     IntDefaultHandler, // Wide Timer 1 subtimer A
182     IntDefaultHandler, // Wide Timer 1 subtimer B
183     IntDefaultHandler, // Wide Timer 2 subtimer A
184     IntDefaultHandler, // Wide Timer 2 subtimer B
185     IntDefaultHandler, // Wide Timer 3 subtimer A
186     IntDefaultHandler, // Wide Timer 3 subtimer B
187     IntDefaultHandler, // Wide Timer 4 subtimer A
188     IntDefaultHandler, // Wide Timer 4 subtimer B
189     IntDefaultHandler, // Wide Timer 5 subtimer A
190     IntDefaultHandler, // Wide Timer 5 subtimer B
191     IntDefaultHandler, // FPU
192     0, // Reserved
193     0, // Reserved
194     IntDefaultHandler, // I2C4 Master and Slave
195     IntDefaultHandler, // I2C5 Master and Slave
196     IntDefaultHandler, // GPIO Port M
197     IntDefaultHandler, // GPIO Port N
198     IntDefaultHandler, // Quadrature Encoder 2
199     0, // Reserved
200     0, // Reserved
201     IntDefaultHandler, // GPIO Port P (Summary or P0)
202     IntDefaultHandler, // GPIO Port P1
203     IntDefaultHandler, // GPIO Port P2
204     IntDefaultHandler, // GPIO Port P3
205     IntDefaultHandler, // GPIO Port P4
206     IntDefaultHandler, // GPIO Port P5
207     IntDefaultHandler, // GPIO Port P6
208     IntDefaultHandler, // GPIO Port P7
209     IntDefaultHandler, // GPIO Port Q (Summary or Q0)
210     IntDefaultHandler, // GPIO Port Q1
211     IntDefaultHandler, // GPIO Port Q2
212     IntDefaultHandler, // GPIO Port Q3
213     IntDefaultHandler, // GPIO Port Q4
214     IntDefaultHandler, // GPIO Port Q5
215     IntDefaultHandler, // GPIO Port Q6
216     IntDefaultHandler, // GPIO Port Q7
217     IntDefaultHandler, // GPIO Port R
218     IntDefaultHandler, // GPIO Port S
219     IntDefaultHandler, // PWM 1 Generator 0
220     IntDefaultHandler, // PWM 1 Generator 1
221     IntDefaultHandler, // PWM 1 Generator 2
222     IntDefaultHandler, // PWM 1 Generator 3
223     IntDefaultHandler, // PWM 1 Fault
224 };

```

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```
225
226 //*****
227 //
228 // This is the code that gets called when the processor first starts execution
229 // following a reset event. Only the absolutely necessary set is performed,
230 // after which the application supplied entry() routine is called. Any fancy
231 // actions (such as making decisions based on the reset cause register, and
232 // resetting the bits in that register) are left solely in the hands of the
233 // application.
234 //
235 //*****
236 void
237 ResetISR(void)
238 {
239     //
240     // Jump to the CCS C initialization routine. This will enable the
241     // floating-point unit as well, so that does not need to be done here.
242     //
243     __asm("    .global _c_int00\n"
244           "    b.w     _c_int00");
245 }
246
247 //*****
248 //
249 // This is the code that gets called when the processor receives a NMI. This
250 // simply enters an infinite loop, preserving the system state for examination
251 // by a debugger.
252 //
253 //*****
254 static void
255 NmiSR(void)
256 {
257     //
258     // Enter an infinite loop.
259     //
260     while(1)
261     {
262     }
263 }
264
265 //*****
266 //
267 // This is the code that gets called when the processor receives a fault
268 // interrupt. This simply enters an infinite loop, preserving the system state
269 // for examination by a debugger.
270 //
271 //*****
272 static void
273 FaultISR(void)
274 {
275     //
276     // Enter an infinite loop.
277     //
278     while(1)
279     {
280     }
```

## startup\_ccs\_keyboard.c

```
281 }
282
283 //*****
284 //
285 // This is the code that gets called when the processor receives an unexpected
286 // interrupt. This simply enters an infinite loop, preserving the system state
287 // for examination by a debugger.
288 //
289 //*****
290 static void
291 IntDefaultHandler(void)
292 {
293     //
294     // Go into an infinite loop.
295     //
296     while(1)
297     {
298     }
299 }
300
```