



branch: master ▾

Arduino / hardware / arduino / cores / arduino / Arduino.h



Lauszus 7 months ago Added support for all variants of Sanguino

4 contributors



executable file

216 lines (168 sloc)

5.844 kb



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History

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```

1  #ifndef Arduino_h
2  #define Arduino_h
3
4  #include <stdlib.h>
5  #include <string.h>
6  #include <math.h>
7
8  #include <avr/pgmspace.h>
9  #include <avr/io.h>
10 #include <avr/interrupt.h>
11
12 #include "binary.h"
13
14 #ifdef __cplusplus
15 extern "C"{
16 #endif
17
18 #define HIGH 0x1
19 #define LOW  0x0
20
21 #define INPUT 0x0
22 #define OUTPUT 0x1
23 #define INPUT_PULLUP 0x2
24
25 #define true 0x1
26 #define false 0x0
27
28 #define PI 3.1415926535897932384626433832795
29 #define HALF_PI 1.5707963267948966192313216916398
30 #define TWO_PI 6.283185307179586476925286766559
31 #define DEG_TO_RAD 0.017453292519943295769236907684886
32 #define RAD_TO_DEG 57.295779513082320876798154814105
33
34 #define SERIAL 0x0
35 #define DISPLAY 0x1
36
37 #define LSBFIRST 0
38 #define MSBFIRST 1
39
40 #define CHANGE 1
41 #define FALLING 2
42 #define RISING 3
43
44 #if defined(__AVR_ATtiny24__) || defined(__AVR_ATtiny44__) || defined(__AVR_ATtiny84__) || defined(__AVR_ATtiny25__) || def:
45 #define DEFAULT 0
46 #define EXTERNAL 1
47 #define INTERNAL 2
48 #else
49 #if defined(__AVR_ATmega1280__) || defined(__AVR_ATmega2560__) || defined(__AVR_ATmega1284__) || defined(__AVR_ATmega1284P__
50 #define INTERNAL1V1 2
51 #define INTERNAL2V56 3
52 #else
53 #define INTERNAL 3
54 #endif
55 #define DEFAULT 1
56 #define EXTERNAL 0

```



```

57 #endif
58
59 // undefine stdlib's abs if encountered
60 #ifdef abs
61 #undef abs
62 #endif
63
64 #define min(a,b) ((a)<(b)?(a):(b))
65 #define max(a,b) ((a)>(b)?(a):(b))
66 #define abs(x) ((x)>0?(x):- (x))
67 #define constrain(amt,low,high) ((amt)<(low)?(low):((amt)>(high)?(high):(amt)))
68 #define round(x)      ((x)>=0?(long)((x)+0.5):(long)((x)-0.5))
69 #define radians(deg) ((deg)*DEG_TO_RAD)
70 #define degrees(rad) ((rad)*RAD_TO_DEG)
71 #define sq(x) ((x)*(x))
72
73 #define interrupts() sei()
74 #define noInterrupts() cli()
75
76 #define clockCyclesPerMicrosecond() ( F_CPU / 1000000L )
77 #define clockCyclesToMicroseconds(a) ( (a) / clockCyclesPerMicrosecond() )
78 #define microsecondsToClockCycles(a) ( (a) * clockCyclesPerMicrosecond() )
79
80 #define lowByte(w) ((uint8_t) ((w) & 0xff))
81 #define highByte(w) ((uint8_t) ((w) >> 8))
82
83 #define bitRead(value, bit) (((value) >> (bit)) & 0x01)
84 #define bitSet(value, bit) ((value) |= (1UL << (bit)))
85 #define bitClear(value, bit) ((value) &= ~(1UL << (bit)))
86 #define bitWrite(value, bit, bitvalue) (bitvalue ? bitSet(value, bit) : bitClear(value, bit))
87
88
89 typedef unsigned int word;
90
91 #define bit(b) (1UL << (b))
92
93 typedef uint8_t boolean;
94 typedef uint8_t byte;
95
96 void init(void);
97
98 void pinMode(uint8_t, uint8_t);
99 void digitalWrite(uint8_t, uint8_t);
100 int digitalRead(uint8_t);
101 int analogRead(uint8_t);
102 void analogReference(uint8_t mode);
103 void analogWrite(uint8_t, int);
104
105 unsigned long millis(void);
106 unsigned long micros(void);
107 void delay(unsigned long);
108 void delayMicroseconds(unsigned int us);
109 unsigned long pulseIn(uint8_t pin, uint8_t state, unsigned long timeout);
110
111 void shiftOut(uint8_t dataPin, uint8_t clockPin, uint8_t bitOrder, uint8_t val);
112 uint8_t shiftIn(uint8_t dataPin, uint8_t clockPin, uint8_t bitOrder);
113
114 void attachInterrupt(uint8_t, void (*)(void), int mode);
115 void detachInterrupt(uint8_t);
116
117 void setup(void);
118 void loop(void);
119
120 // Get the bit location within the hardware port of the given virtual pin.
121 // This comes from the pins_*.c file for the active board configuration.
122
123 #define analogInPinToBit(P) (P)
124
125 // On the ATmega1280, the addresses of some of the port registers are
126 // greater than 255, so we can't store them in uint8_t's.
127 extern const uint16_t PROGMEM port_to_mode_PGM[];
128 extern const uint16_t PROGMEM port_to_input_PGM[];
129 extern const uint16_t PROGMEM port_to_output_PGM[];
130

```

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131 extern const uint8_t PROGMEM digital_pin_to_port_PGM[];
132 // extern const uint8_t PROGMEM digital_pin_to_bit_PGM[];

133 extern const uint8_t PROGMEM digital_pin_to_bit_mask_PGM[];
134 extern const uint8_t PROGMEM digital_pin_to_timer_PGM[];
135
136 // Get the bit location within the hardware port of the given virtual pin.
137 // This comes from the pins_*.c file for the active board configuration.
138 //
139 // These perform slightly better as macros compared to inline functions
140 //
141 #define digitalPinToPort(P) ( pgm_read_byte( digital_pin_to_port_PGM + (P) ) )
142 #define digitalPinToBitMask(P) ( pgm_read_byte( digital_pin_to_bit_mask_PGM + (P) ) )
143 #define digitalPinToTimer(P) ( pgm_read_byte( digital_pin_to_timer_PGM + (P) ) )
144 #define analogInPinToBit(P) (P)
145 #define portOutputRegister(P) ( (volatile uint8_t *) ( pgm_read_word( port_to_output_PGM + (P) ) ) )
146 #define portInputRegister(P) ( (volatile uint8_t *) ( pgm_read_word( port_to_input_PGM + (P) ) ) )
147 #define portModeRegister(P) ( (volatile uint8_t *) ( pgm_read_word( port_to_mode_PGM + (P) ) ) )
148
149 #define NOT_A_PIN 0
150 #define NOT_A_PORT 0
151
152 #ifdef ARDUINO_MAIN
153 #define PA 1
154 #define PB 2
155 #define PC 3
156 #define PD 4
157 #define PE 5
158 #define PF 6
159 #define PG 7
160 #define PH 8
161 #define PJ 10
162 #define PK 11
163 #define PL 12
164 #endif
165
166 #define NOT_ON_TIMER 0
167 #define TIMER0A 1
168 #define TIMER0B 2
169 #define TIMER1A 3
170 #define TIMER1B 4
171 #define TIMER2 5
172 #define TIMER2A 6
173 #define TIMER2B 7
174
175 #define TIMER3A 8
176 #define TIMER3B 9
177 #define TIMER3C 10
178 #define TIMER4A 11
179 #define TIMER4B 12
180 #define TIMER4C 13
181 #define TIMER4D 14
182 #define TIMER5A 15
183
184 #define TIMERS5B 16
185 #define TIMERS5C 17
186
187 #ifdef __cplusplus
188 } // extern "C"
189 #endif
190
191 #ifdef __cplusplus
192 #include "WCharacter.h"
193 #include "WString.h"
194 #include "HardwareSerial.h"
195
196 uint16_t makeWord(uint16_t w);
197 uint16_t makeWord(byte h, byte l);
198
199 #define word(...) makeWord(__VA_ARGS__)
200
201 unsigned long pulseIn(uint8_t pin, uint8_t state, unsigned long timeout = 1000000L);
202
203 void tone(uint8_t _pin, unsigned int frequency, unsigned long duration = 0);
204 void noTone(uint8_t _pin);

```

```
204
205 // WMath prototypes
206 long random(long);
207 long random(long, long);
208 void randomSeed(unsigned int);
209 long map(long, long, long, long, long);
210
211 #endif
212
213 #include "pins_arduino.h"
214
215 #endif
```

