eHAL

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1 Introduction

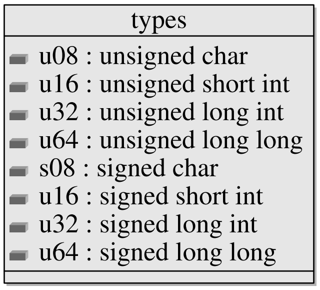
eHAL - Embedded Hardware Abstraction Layer, is a light-weighted C runtime library intended to support common hardware operations on 8, 16 and 32bits MCUs. This file will describe the interface those modules should have for a given implementation be eHAL compliant.

2 Modules

types, pin, port, spim, spis, i2cm, i2cs, usart, sleep, eeprom, flash, can, lin, pwm

2.1 Types

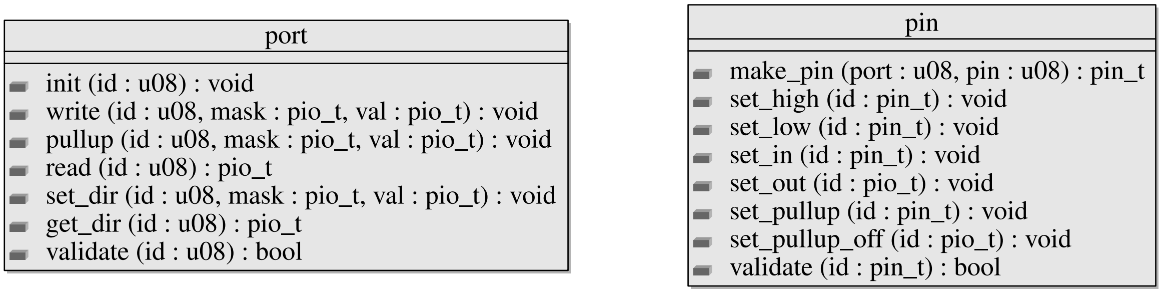
Some custom types wore introduced to shorten typing, U for unsigned S for signed followed by the number of bits it occupies in memory.



types

- u08 : unsigned char
- u16 : unsigned short int
- u32 : unsigned long int
- u64 : unsigned long long
- s08 : signed char
- u16 : signed short int
- u32 : signed long int
- u64 : signed long long

2.2 Port-Pin I/O



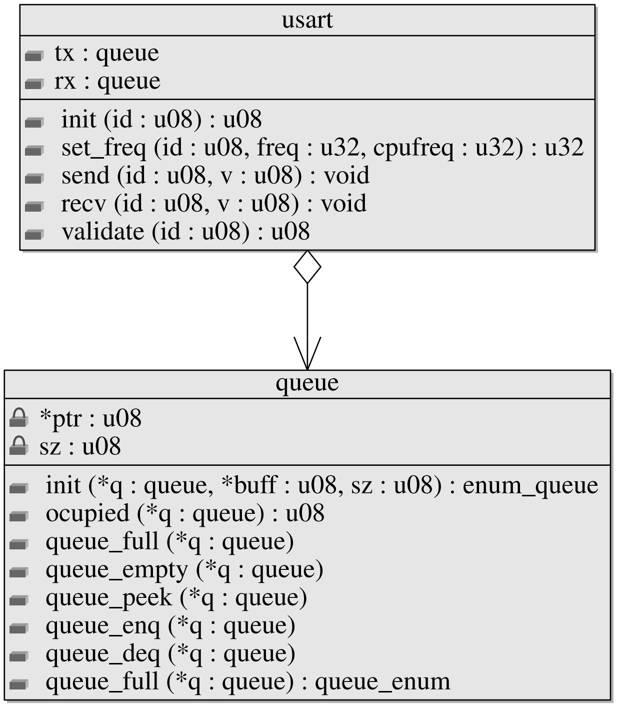
port

init (id : u08) : void
write (id : u08, mask : pio_t, val : pio_t) : void
pullup (id : u08, mask : pio_t, val : pio_t) : void
read (id : u08) : pio_t
set_dir (id : u08, mask : pio_t, val : pio_t) : void
get_dir (id : u08) : pio_t
validate (id : u08) : bool

pin

make_pin (port : u08, pin : u08) : pin_t
set_high (id : pin_t) : void
set_low (id : pin_t) : void
set_in (id : pin_t) : void
set_out (id : pio_t) : void
set_pullup (id : pin_t) : void
set_pullup_off (id : pio_t) : void
validate (id : pin_t) : bool

2.3 USART



usart

tx : queue
rx : queue

init (id : u08) : u08
set_freq (id : u08, freq : u32, cpufreq : u32) : u32
send (id : u08, v : u08) : void
recv (id : u08, v : u08) : void
validate (id : u08) : u08

queue

*ptr : u08
sz : u08

init (*q : queue, *buff : u08, sz : u08) : enum_queue
ocupied (*q : queue) : u08
queue_full (*q : queue)
queue_empty (*q : queue)
queue_peek (*q : queue)
queue_enq (*q : queue)
queue_deq (*q : queue)
queue_full (*q : queue) : queue_enum