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What is "Embedded - Microcontrollers"?

"Embedded - Microcontrollers" refer to small, integrated circuits designed to perform specific tasks within larger systems. These microcontrollers are essentially compact computers on a single chip, containing a processor core, memory, and programmable input/output peripherals. They are called "embedded" because they are embedded within electronic devices to control various functions, rather than serving as standalone computers. Microcontrollers are crucial in modern electronics, providing the intelligence and control needed for a wide range of applications.

Applications of "Embedded - Microcontrollers"

Details	
Product Status	Active
Core Processor	ARM® Cortex®-M0+
Core Size	32-Bit Single-Core
Speed	32MHz
Connectivity	I²C, IrDA, LINbus, SPI, UART/USART, USB
Peripherals	Brown-out Detect/Reset, DMA, I²S, LCD, POR, PWM, WDT
Number of I/O	51
Program Memory Size	192KB (192K x 8)
Program Memory Type	FLASH
EEPROM Size	6K x 8
RAM Size	20K x 8
Voltage - Supply (Vcc/Vdd)	1.8V ~ 3.6V
Data Converters	A/D 16x12b; D/A 2x12b
Oscillator Type	Internal
Operating Temperature	-40°C ~ 85°C (TA)
Mounting Type	Surface Mount
Package / Case	64-LQFP
Supplier Device Package	64-LQFP (10x10)
Purchase URL	https://www.e-xfl.com/product-detail/stmicroelectronics/stm32l073rzt6u

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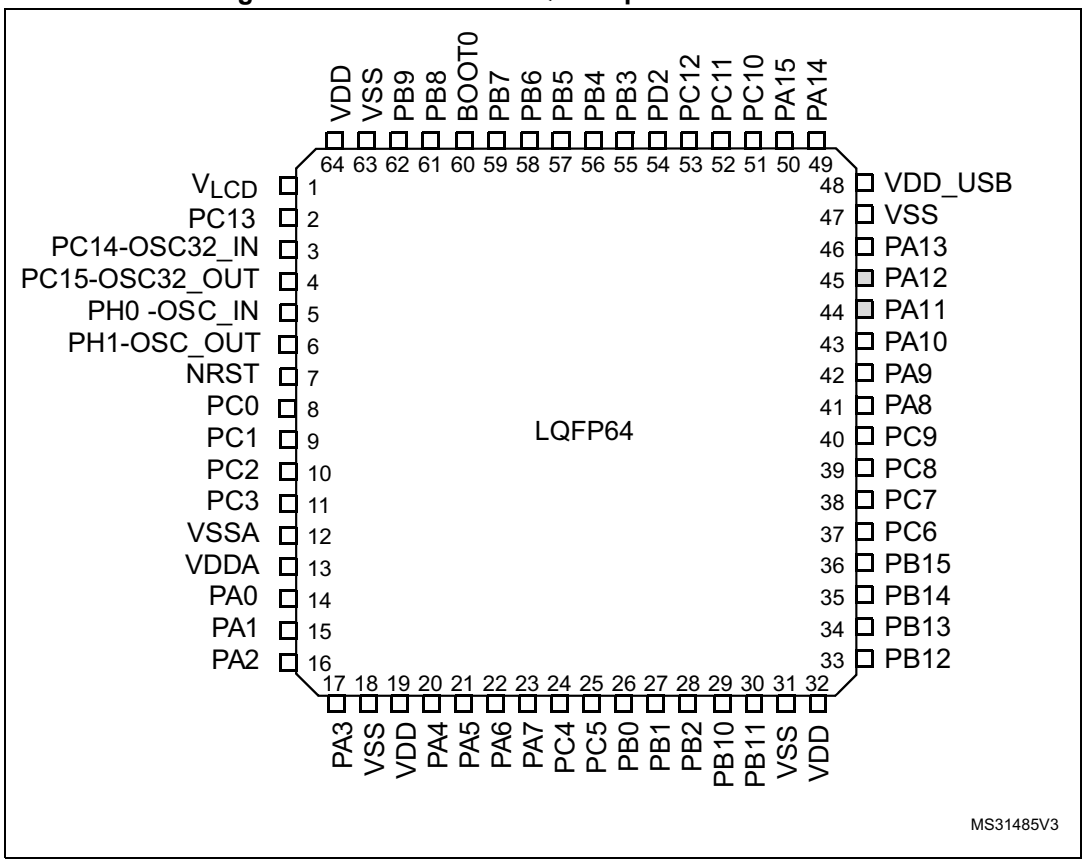
Figure 5. STM32L073xx LQFP64 pinout - 10 x 10 mm



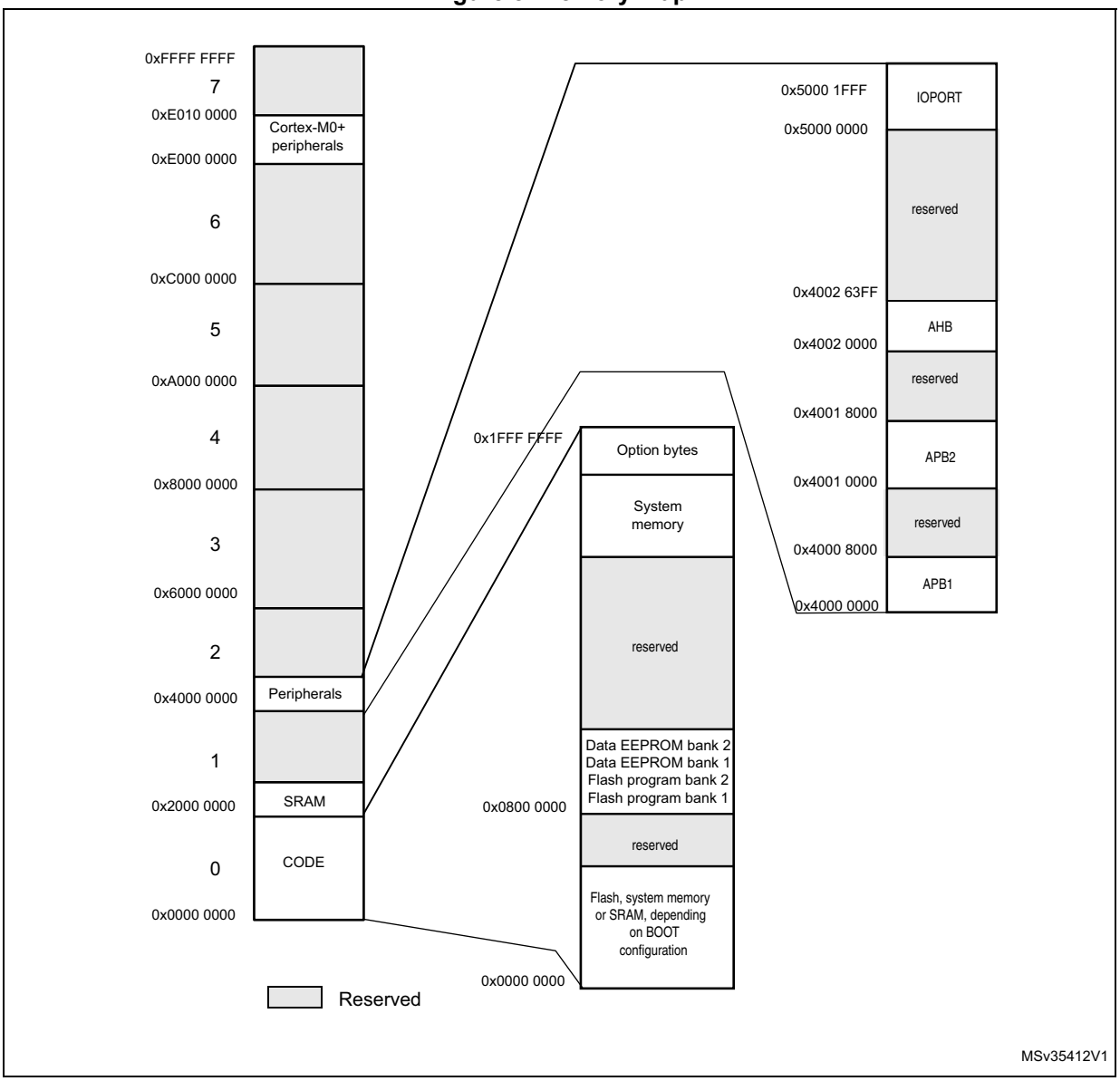
1. The above figure shows the package top view.
2. I/O pin supplied by VDD_USB.

Table 16. STM32L073xx pin definition (continued)

Pin number					Pin name (function after reset)	Pin type	I/O structure	Note	Alternate functions	Additional functions
LQFP48	LQFP64	TFBGA64	LQFP100	UFBGA100						
-	18	C2	27	E3	VSS	S	-	-	-	-
-	19	D2	28	H3	VDD	S	-	-	-	-
14	20	H3	29	M3	PA4	I/O	TC	(1)	SPI1_NSS, TSC_G2_IO1, USART2_CK, TIM22_ETR	COMP1_INM, COMP2_INM, ADC_IN4, DAC_OUT1
15	21	F4	30	K4	PA5	I/O	TC	-	SPI1_SCK, TIM2_ETR, TSC_G2_IO2, TIM2_CH1	COMP1_INM, COMP2_INM, ADC_IN5, DAC_OUT2
16	22	G4	31	L4	PA6	I/O	FT	-	SPI1_MISO, LCD_SEG3, TIM3_CH1, TSC_G2_IO3, LPUART1_CTS, TIM22_CH1, EVENTOUT, COMP1_OUT	ADC_IN6
17	23	H4	32	M4	PA7	I/O	FT	-	SPI1_MOSI, LCD_SEG4, TIM3_CH2, TSC_G2_IO4, TIM22_CH2, EVENTOUT, COMP2_OUT	ADC_IN7
-	24	H5	33	K5	PC4	I/O	FT	-	EVENTOUT, LCD_SEG22, LPUART1_TX	ADC_IN14
-	25	H6	34	L5	PC5	I/O	FT	-	LCD_SEG23, LPUART1_RX, TSC_G3_IO1	ADC_IN15
18	26	F5	35	M5	PB0	I/O	FT	-	EVENTOUT, LCD_SEG5, TIM3_CH3, TSC_G3_IO2	LCD_VLCD3, ADC_IN8, VREF_OUT
19	27	G5	36	M6	PB1	I/O	FT	-	LCD_SEG6, TIM3_CH4, TSC_G3_IO3, LPUART1_RTS_DE	ADC_IN9, VREF_OUT
20	28	G6	37	L6	PB2	I/O	FT	-	LPTIM1_OUT, TSC_G3_IO4, I2C3_SMBA	LCD_VLCD1
-	-	-	38	M7	PE7	I/O	FT	-	LCD_SEG45, USART5_CK/USART5_RTS	-
-	-	-	39	L7	PE8	I/O	FT	-	LCD_SEG46, USART4_TX	-
-	-	-	40	M8	PE9	I/O	FT	-	TIM2_CH1, LCD_SEG47, TIM2_ETR, USART4_RX	-

5 Memory mapping

Figure 8. Memory map



1. Refer to the STM32L073xx reference manual for details on the Flash memory organization for each memory size.

Table 26. General operating conditions (continued)

Symbol	Parameter	Conditions	Min	Max	Unit
T_A	Temperature range	Maximum power dissipation (range 6)	–40	85	°C
		Maximum power dissipation (range 7)	–40	105	
		Maximum power dissipation (range 3)	–40	125	
T_J	Junction temperature range (range 6)	-40 °C ≤ T_A ≤ 85 °	–40	105	
	Junction temperature range (range 7)	-40 °C ≤ T_A ≤ 105 °C	–40	125	
	Junction temperature range (range 3)	-40 °C ≤ T_A ≤ 125 °C	–40	130	

1. It is recommended to power V_{DD} and V_{DDA} from the same source. A maximum difference of 300 mV between V_{DD} and V_{DDA} can be tolerated during power-up and normal operation.
2. V_{DD_USB} must respect the following conditions:

- When V_{DD} is powered on (V_{DD} < V_{DD_min}), V_{DD_USB} should be always lower than V_{DD}.
- When V_{DD} is powered down (V_{DD} < V_{DD_min}), V_{DD_USB} should be always lower than V_{DD}.
- In operating mode, V_{DD_USB} could be lower or higher V_{DD}.
- If the USB is not used, V_{DD_USB} must range from V_{DD_min} to V_{DD_max} to be able to use PA11 and PA12 as standard I/Os.

3. To sustain a voltage higher than V_{DD}+0.3V, the internal pull-up/pull-down resistors must be disabled.
4. If T_A is lower, higher P_D values are allowed as long as T_J does not exceed T_J max (see Table 90: Thermal characteristics on page 134).