



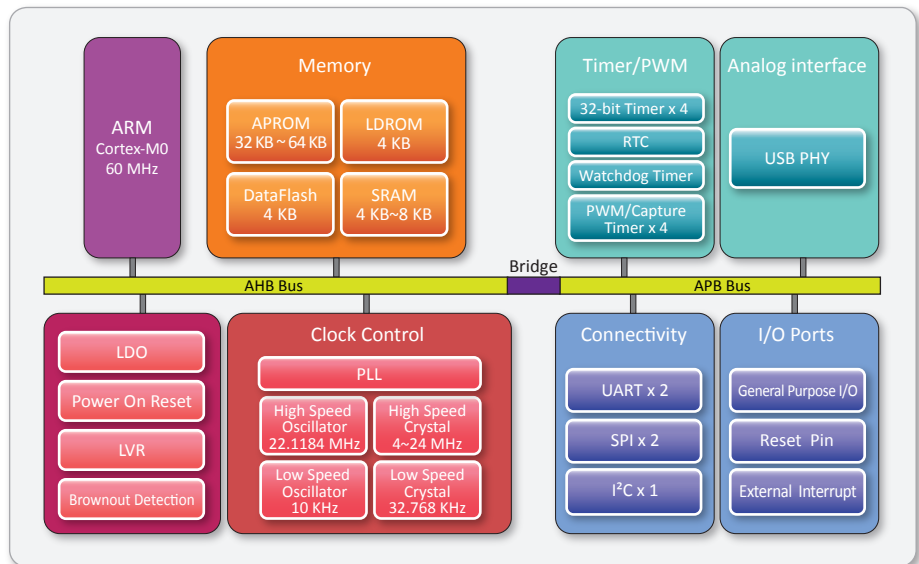
Nuvoton NuMicro™ Family

# NuMicro™ NUC122 Series

Simplified multi-connectivity Cortex™-M0  
USB device MCU interface with low power

## » Applications

- ◆ Communication System
- ◆ USB Device Application
- ◆ Consumer Products
- ◆ Low Power Application



## » Selection Guide

Part No.	Flash	SRAM	Data Flash	ISP Loader ROM	I/O	Timer	Connectivity						I <sup>2</sup> S	Comp.	PWM	ADC	RTC	EBI	ISP ICP	IRC 22MHz	PDMA	Package
							UART	SPI	I <sup>2</sup> C	USB	LIN	CAN										
NUC122ZC1AN	32K	4K	4K	4K	up to 18	4x32-bit	1	2	1	1	-	-	-	-	-	-	-	-	v	-	-	QFN33
NUC122ZD2AN	64K	8K	4K	4K	up to 18	4x32-bit	1	2	1	1	-	-	-	-	-	-	-	-	v	v	-	QFN33
NUC122LC1AN	32K	4K	4K	4K	up to 30	4x32-bit	2	2	1	1	-	-	-	4	-	-	v	-	v	v	-	LQFP48
NUC122LD2AN	64K	8K	4K	4K	up to 30	4x32-bit	2	2	1	1	-	-	-	4	-	-	v	-	v	v	-	LQFP48
NUC122SC1AN	32K	4K	4K	4K	up to 41	4x32-bit	2	2	1	1	-	-	-	4	-	-	v	-	v	v	-	LQFP64*
NUC122SD2AN	64K	8K	4K	4K	up to 41	4x32-bit	2	2	1	1	-	-	-	4	-	-	v	-	v	v	-	LQFP64*

\*LQFP64: 7 X 7mm

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## » Features of NUC122 series

### ◆ Core

- ARM® Cortex™-M0 core runs up to 60 MHz
- One 24-bit system timer
- Support low power sleep mode
- Single-cycle 32-bit hardware multiplier
- NVIC for the 32 interrupt inputs, each with 4-levels of priority
- Support Serial Wire Debug (SWD) interface and 2 watchpoints/4 breakpoints

### ◆ Memory

- 32K/64K bytes flash memory for program memory (APROM)
- 4K bytes flash memory for data memory (DataFlash)
- 4K bytes flash memory for loader memory (LDROM)
- 4K/8K bytes embedded SRAM
- Support In System Programming (ISP) update APROM
- Support 2 wire In Circuit Programming (ICP) update APROM or LDROM or DataFlash
- Support fast parallel programming mode to update APROM or LDROM or DataFlash

### ◆ Clock Control

- Flexible selection from different clock source
- Built-in 22.1184 MHz high speed OSC for system operation
  - Trimmed to  $\pm 1\%$  at  $+25^{\circ}\text{C}$  and  $V_{DD} = 3.3\text{V}$
  - Trimmed to  $\pm 5\%$  at  $-40^{\circ}\text{C} \sim +85^{\circ}\text{C}$  and  $V_{DD} = 2.5\text{V} \sim 5.5\text{V}$
- Built-in 10 KHz low speed OSC for Watchdog Timer and Wake-up operation
- Support one PLL, up to 60 MHz, for high performance system operation
- External 4 ~ 24 MHz high speed crystal input for USB and precise timing operation
- External 32.768 KHz low speed crystal input for RTC function and low power system operation

### ◆ Timers

- Support 4 sets of 32-bit timers with 24-bit counters and one 8-bit pre-scale counter
- Counter auto reload

### ◆ PWM

- Built-in up to two 16-bit PWM generators provide four PWM outputs or two complementary paired PWM outputs
- Each PWM generator equipped with one clock source selector, one clock divider, one 8-bit pre-scale and one Dead-Zone generator for complementary paired PWM
- Up to four 16-bit digital capture timers (shared with PWM timers) provide four rising/falling capture inputs
- Support capture interrupt

### ◆ Communication Interface

- Maximum 2 UARTs, up to 1 Mbit/s with flow control
- Maximum 2 SPIs, up to 25 MHz (Master@5V), 12 MHz (Slave)
- 1 I<sup>2</sup>C
- Support IrDA (SIR) function
- Support RS485

### ◆ USB 2.0 Full-Speed Device

- One set of USB 2.0 FS Device 12 Mbps
- On-chip USB Transceiver
- Provide 1 interrupt source with 4 interrupt events
- Support Control, Bulk In/Out, Interrupt and Isochronous transfers
- Auto suspend function when no bus signaling for 3 ms
- Provide 6 programmable endpoints
- 512 bytes internal SRAM as USB buffer included
- Provide remote wake-up capability

### ◆ RTC

- Support software compensation by setting frequency compensate register (FCR)
- Support RTC counter (second, minute, hour) and calendar counter (day, month, year)
- Support alarm registers (second, minute, hour, day, month, year)

### ◆ Brownout Detector

- With 4 levels: 4.5V / 3.8V / 2.7V / 2.2V
- Support brownout interrupt and reset option

### ◆ GPIOs

- Up to 41 general-purpose I/O (GPIO) pins
- Four I/O modes:
  - Quasi bi-direction
  - Push-Pull output
  - Open-Drain output
  - Input only with high impedance
- TTL/Schmitt trigger input selectable
- All GPIO pins can be configured as interrupt source with edge/level setting

### ◆ Built-in LDO for Wide Operating Voltage Range

- 2.5V to 5.5V

### ◆ Operating Temperature

- $-40^{\circ}\text{C} \sim 85^{\circ}\text{C}$

### ◆ Packages (RoHS)

- QFN33 (5x5mm)
- LQFP48 (7x7mm)
- LQFP64 (7x7mm)