

NuMicro® M3331 Series

180 MHz Cortex®-M33 with Advanced Communication and Control Peripherals



► Product Description

The NuMicro® M3331 series is a 32-bit microcontroller powered by the Arm® Cortex®-M33 core. It integrates TrustZone® technology, a DSP instruction set, and a floating-point unit (FPU). Operating at up to 180 MHz, the M3331 series supports 1.7V to 3.6V operating voltage and -40°C to +105°C wide operating temperature. It features high immunity with ESD HBM 4 kV and EFT 4.4 kV ratings.

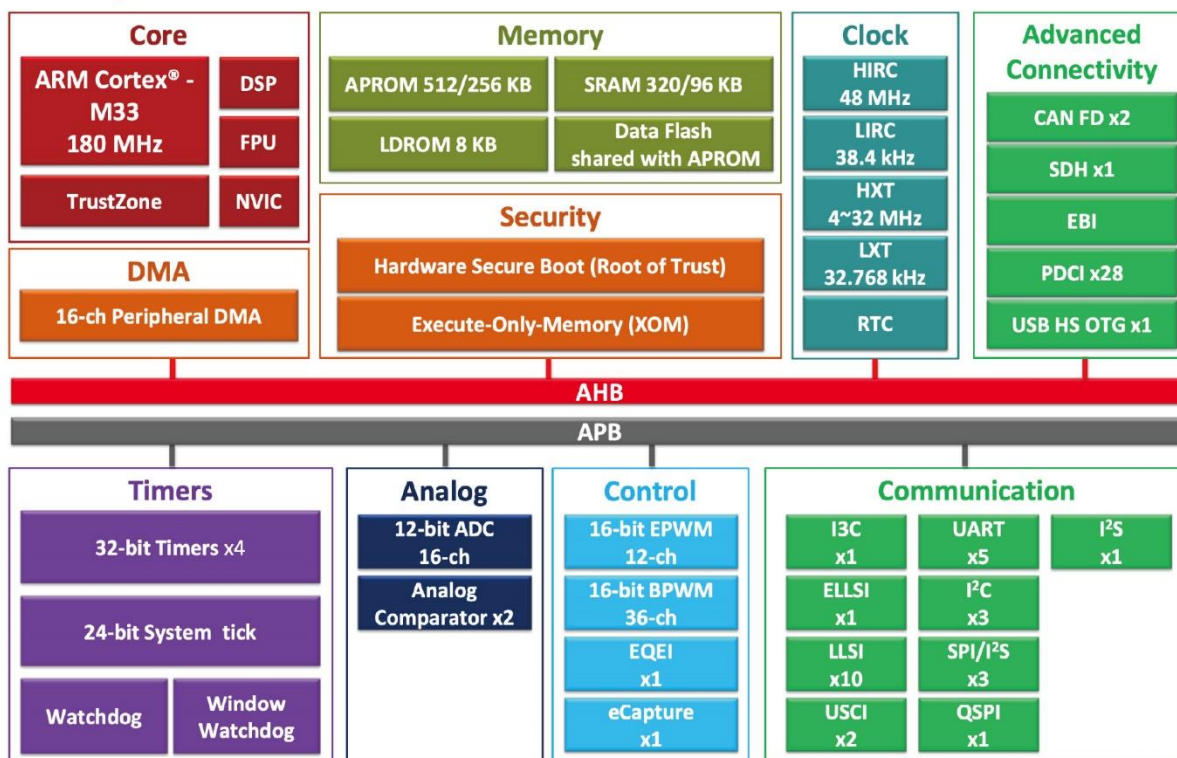
► Key Features

- Core: Arm® Cortex®-M33 180 MHz with a DSP instruction set, and a floating-point unit (FPU).
- On-chip Memory: Up to 320 KB SRAM, including 64 KB with hardware parity check, and 512 KB Flash memory with error correction code (ECC).
- Enhanced Security: TrustZone®, Secure Boot, and Execute-Only Memory (XOM)
- Connectivity and Control: USB HS OTG, PDCI, LLSI, ELLSI, I3C, 48-ch PWM, CAN FD, SDH, USCI, EQEI, ECAP, etc
- Analogs: 12-bit 4.2 Msps SAR ADC and analog comparator
- Low Power Consumption: 91 uA/MHz in Normal Run mode

► Applications

- Industrial Control
- Smart Buildings
- Consumer Electronics
- Smart Factories
- Renewable Energy

► Block Diagram

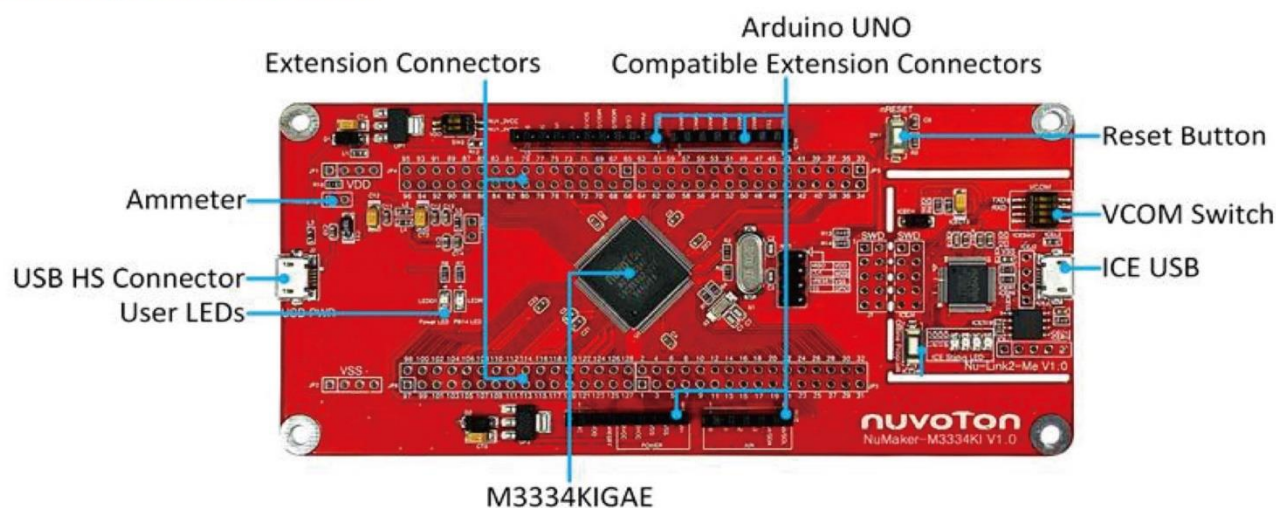


► Development Environment

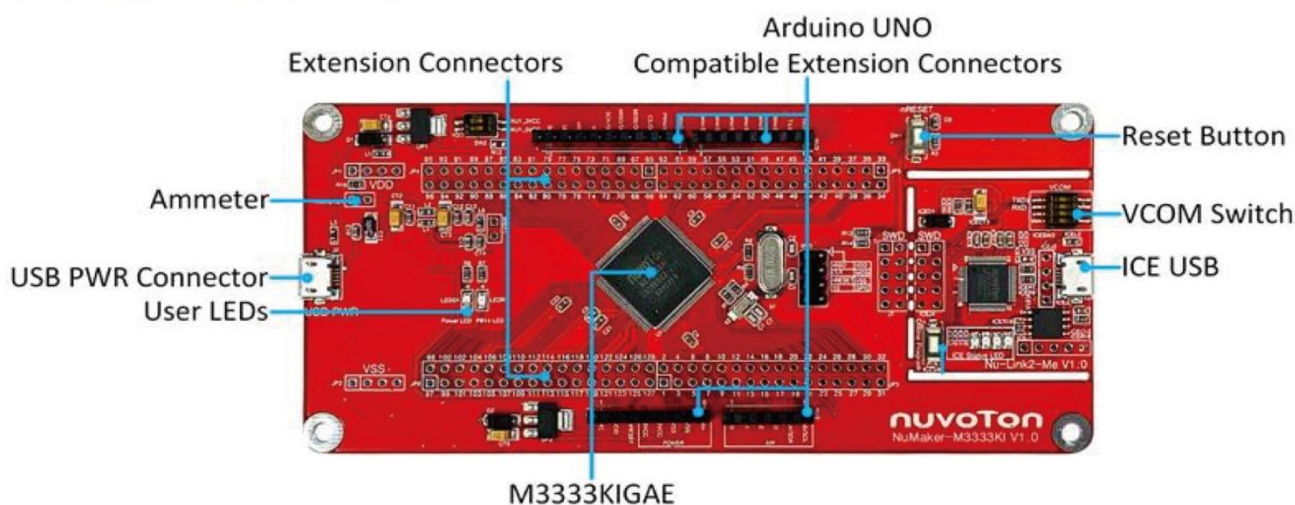
Item	Description
Programming IDE	Keil MDK, IAR, VS Code
Software Package	Board Support Package (BSP), Sample Code
Development IDE	NuTool-PinView, NuTool-PinConfigure, NuTool-ClockConfigure, NuConsoleNuTool
RTOS	FreeRTOS, Zephyr, RT Thread
GUI Library	emWin, LVGL

► Evaluation board

- Part No. : NuMaker-M3334KI
- Ordering No. : NK-M3334KI



- Part No. : NuMaker-M3333KI
- Ordering No. : NK-M3333KI



► Product Selection Guide

• M3334 Series

Part No.	System							Memory				Timer		Analog	Connectivity														Security	Package		Status	Tool				
	Core	Operating Frequency (MHz)	Operating Voltage (min)(V)	Operating Voltage (max)(V)	Operating Temperature (min)(°C)	Operating Temperature (max)(°C)	GPIO	LDROM Flash (KB)	APROM Flash (KB)	SRAM (KB)	PDMA (ch)	Timer (32N/Abit)	PWM	RTC	EADC (12N/Abit)	Analog Comparator	I3C	ELSI	LLSI	LPUART	QSPI	I2C	USCI	SP/I2S	I2S	CAN FD	SDHC	USB HS	EBI	eCapture	EOEI	XOM (KB)	Package Type	Package Size	Mass Production	EVB	MP Programmer
M3334 KIGAE	Cortex-M33	180	1.7	3.6	-40	105	102	8	512	320	16	4	48	v	16	2	1	1	10	5	1	3	2	3	1	2	1	OTG	v	1	1	✓	LQFP 128	14x14	✓	NK-M3334KI	NLG-128K
M3334 SIGAE	Cortex-M33	180	1.7	3.6	-40	105	46	8	512	320	16	4	45	v	16	2	1	1	10	5	1	3	2	3	1	2	1	OTG	v	1	1	✓	LQFP 64	7x7	✓	NK-M3334KI	NLG-64S
M3334 LIGAE	Cortex-M33	180	1.7	3.6	-40	105	34	8	512	320	16	4	40	v	12	2	1	1	10	5	1	3	2	3	1	2	1	OTG	-	1	1	✓	LQFP 48	7x7	✓	NK-M3334KI	NLG-48L
M3334 YIGAE	Cortex-M33	180	1.7	3.6	-40	105	34	8	512	320	16	4	40	v	12	2	1	1	10	5	1	3	2	3	1	2	1	OTG	-	1	1	✓	QFN 48	5x5	✓	NK-M3334KI	NLG-48Y
M3334 TIGAE	Cortex-M33	180	1.7	3.6	-40	105	21	8	512	320	16	4	29	v	10	2	1	1	8	5	1	3	2	2	1	-	1	Device	-	-	-	✓	QFN 33	4x4	✓	NK-M3334KI	NLG-33T

*Number of PWM channels, including EPWM and BPWM channels.

• M3333 Series

Part No.	System							Memory			Timer		Analog	Connectivity														Security	Package		Status	Tool					
	Core	Operating Frequency (MHz)	Operating Voltage (min)(V)	Operating Voltage (max)(V)	Operating Temperature (min)(°C)	Operating Temperature (max)(°C)	GPIO	LDROM Flash (KB)	APROM Flash (KB)	SRAM (KB)	PDMA (ch)	Timer (32N/Abit)	PWM	RTC	EADC (12N/Abit)	Analog Comparator	I3C	ELSI	LLSI	LPUART	QSPI	I2C	USCI	SP/RS	RS	CAN FD	SDHC	USB HS	EBI	eCapture	EOEI	XOM (KB)	Package Type	Package Size	Mass Production	EVB	MP Programmer
M3333 KIGAE	Cortex-M33	180	1.7	3.6	-40	105	110	8	512	320	16	4	48	v	16	2	1	1	10	5	1	3	2	3	1	2	1	-	v	1	1	✓	LQFP 128	14x14	✓	NK-M3333KI	NLG-128K
M3333 SIGAE	Cortex-M33	180	1.7	3.6	-40	105	54	8	512	320	16	4	48	v	16	2	1	1	10	5	1	3	2	3	1	2	1	-	v	1	1	✓	LQFP 64	7x7	✓	NK-M3333KI	NLG-64S
M3333 LIGAE	Cortex-M33	180	1.7	3.6	-40	105	42	8	512	320	16	4	45	v	12	2	1	1	10	5	1	3	2	3	1	2	1	-	v	1	1	✓	LQFP 48	7x7	✓	NK-M3333KI	NLG-48L
M3333 YIGAE	Cortex-M33	180	1.7	3.6	-40	105	42	8	512	320	16	4	45	v	12	2	1	1	10	5	1	3	2	3	1	2	1	-	v	1	1	✓	QFN 48	5x5	✓	NK-M3333KI	NLG-48Y
M3333 TIGAE	Cortex-M33	180	1.7	3.6	-40	105	27	8	512	320	16	4	36	v	10	2	1	1	10	5	1	3	2	3	1	1	1	-	-	-	-	✓	QFN 33	4x4	✓	NK-M3333KI	NLG-33T

*Number of PWM channels, including EPWM and BPWM channels.

For more details, please visit <https://www.nuvoton.com/products/microcontrollers/arm-cortex-m33-mcus/m3334-series/>
<https://www.nuvoton.com/products/microcontrollers/arm-cortex-m33-mcus/m3333-series/>



M3334 Series



M3333 Series



Direct