

NuMicro[®] MG51 Series Industrial 8051 MCU



▶ PRODUCT DESCRIPTION

The NuMicro MG51 series stands as an industrial-grade 8051-based microcontroller, offering a wide operational range of both voltage and temperature. With robust immunity to ESD and EFT, it is well-suited for challenging industrial environments. The microcontroller boasts ample on-chip SRAM and flash memories, along with a diverse set of peripherals, all packaged in a compact form, making it an ideal choice for industrial applications.

▶ KEY FEATURES

- Operating voltage: 2.4V ~ 5.5V, Operating temperature: -40°C ~ +105°C
- 1T 8051-based fully static CPU, running up to 24 MHz.
- 256-Byte on-chip RAM, 1 KB auxiliary SRAM
- 16 KB or 32 KB flash memory for storing program.
- Up to 4 KB LDRAM flash memory dedicated for storing boot loader that supports ISP
- Internal clocks of 16 MHz/24 MHz HIRC, 10 kHz LIRC.
- 12-bit, 500 Ksps, 8 single-ended channel SAR ADC
- 16-bit, 24 MHz, 6 output channel PWM
- Supports Power-on reset, Brown-out detector, Low-voltage reset
- Strong immunity. ESD HBM: ±7 kV, ESD CDM: ±1 kV, EFT: ±4.4 kV

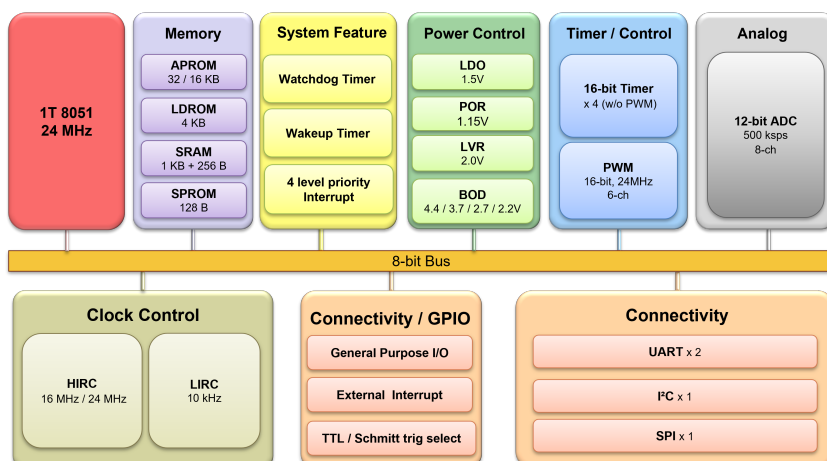
NuMicro[®] MG51 Series Key Features Table

Product Line	UART	PC	SPI	Timer	PWM	ADC
MG51	2	1	1	4	6	8

▶ APPLICATIONS

- Home appliances
- Remote controller
- LED lighting
- BMS
- Power measurement
- User Interface
- Industrial automation
- Battery charger

▶ Block Diagram



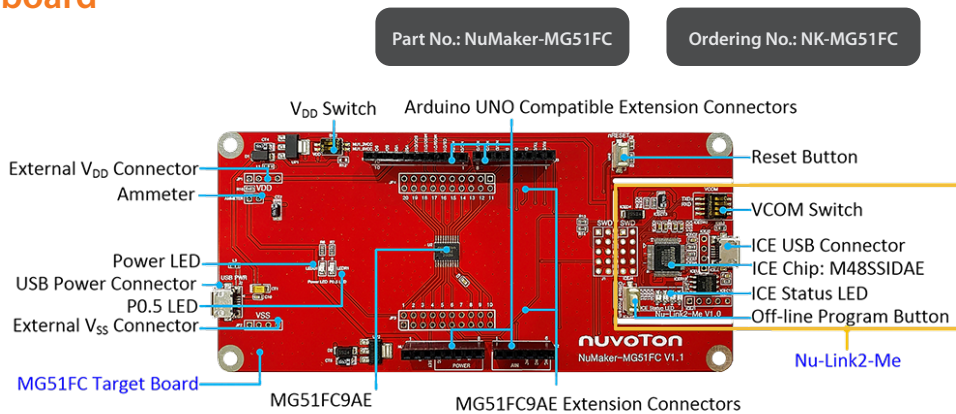
▶ Portfolio and Packages

Flash/SRAM (KB)	Package	
	TSSOP20	QFN20
32 / 1.2	MG51FC9AE	MG51XC9AE
16 / 1.2	MG51FB9AE	MG51XB9AE
Pin Count	20	20
Type	TSSOP	QFN
I/O Pin	18	18
Lead Pitch	0.65	0.4
Dimension (mm)	4.4x6.5	3x3

► Support for development

Item	Name	Features
IDE & compiler	Keil PK51 IAR EW8051 NuEclipse	MG51 is supported by Keil and IAR's C compilers for 8051-based MCU. NuEclipse is Nuvoton's proprietary IDE which integrates SDCC compiler for 8051-based MCU with free license.
Evaluation board	NuMaker EVB	NuMaker evaluation board with on-board debugger/programmer (Nu-Link2-Me)
Debugger & Programmer	Nu-Link2-Me Nu-Link-Pro Nu-Link2-Pro	Debugging, online programming, offline programming (optional), VCOM port, ISP Firmware upgrade
Software Tools	NuTool Suite	NuTool-PinConfigure, NuTool-USB to serial port
BSP	NuMicro BSP	The BSP includes the device drivers, library, sample codes and documents.

► Evaluation board



► Product Selection Guide

Part Number	Flash (KB)	SRAM (KB)	LDRAM (KB)	I/O	Timer	PWM	UART	SPI	I ² C	12-bit ADC	Package
MG51FB9AE	16	1.25	4	18	4	6	2	1	1	8-ch	TSSOP20
MG51XB9AE	16	1.25	4	18	4	6	2	1	1	8-ch	QFN20
MG51FC9AE	32	1.25	4	18	4	6	2	1	1	8-ch	TSSOP20
MG51XC9AE	32	1.25	4	18	4	6	2	1	1	8-ch	QFN20

