

# RAMTRON Microcontrollers and Processor Companions **RAMTRON**

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## RAMTRON VERSA 8051 MICROCONTROLLERS

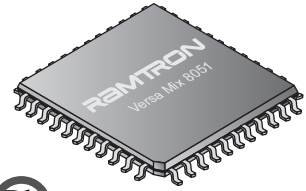
### VRS51L2070 and VRS51L3074 (FRAM-Enhanced Versa 8051 MCU)

Upgrade 8-bit designs with the VRS51L2070/3074, fast and flexible 8051-based systems-on-chip (SoCs) that deliver the power and speed of a 16-bit MCU without having to migrate from an 8-bit device. The first of its kind, the VRS51L3074 combines a high performance SoC with nonvolatile FRAM memory, for a quick and reliable nonvolatile data storage/processing system that only a FRAM-enhanced MCU can provide.

- Memory:**
- 8K Bytes FRAM (VRS51L3074)
  - 64KB ISP/AP Flash
  - 4KB SRAM

- Unique MCU Features:**
- 40 MHz internal oscillator
  - Enhanced hardware Arithmetic unit with barrel shifter for DSP operations
  - JTAG Interface for Programming/Debugging/Emulation
  - UARTs include baud rate generator with micro baud rate adjustment
  - Enhanced SPI and I<sup>2</sup>C Interfaces
  - PWCs, PWMs Timers and Watchdog Timer
  - Port Change and Pin Change Interrupt

- High performance 8051 CPU:**
- Up to 40-MIPS processing power
  - Drastically faster than standard 8051s
  - Same instruction set as standard 8051s



◆ Surface Mount Device

For quantities of 1000 and up, call for quote.

MOUSER STOCK NO.	Ramtron Part No.	Case Type	Speed (MHz)	Memory			I/O Ports (8-bit)	Timer/Counters	Watch Dog Timer	Serial UART	PWM Outputs	Supply Voltage (V)	Temp. Range (°C)	Price Each			
				Flash	SRAM	FRAM								1	25	100	500
◆ 877-VRS51L207040QG	VRS51L2070-40-QG	QFP-64	40	64K	4K	-	56	3+	Yes	2	8	3.3	-40 to +85	12.06	11.51	11.51	10.41
◆ 877-VRS51L307440QG	VRS51L3074-40-QG	QFP-64	40	64K	4K	8K	56	3+	Yes	2	8	3.3	-40 to +85	14.85	14.18	14.18	12.83

## RAMTRON EVALUATION BOARD FOR FRAM BASED VERSA MICROCONTROLLERS

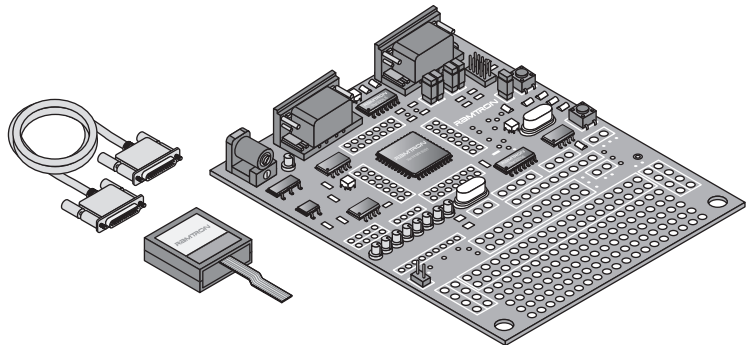
The VersaKit-20XX and VersaKit-30XX development kits are a plug-and-play evaluation system for the VRS51L2074 and VRS51L3074 of high performance, fully-integrated, FRAM-enhanced 8051 microcontrollers. These kits provide a complete and comprehensive programming and development platform, with ample prototyping space and easy access to chip peripherals and I/Os.

### Development Board Features:

- VRS51L2070/VRS51L3074 in QFP-64 package soldered onboard
- FM31xx MCU companion, FM25xx SPI FRAM and FM24xx IC FRAM devices installed
- 5x2 header to connect Versa-JTAG programming/debugging interface
- 2 DB9 serial port female connectors and 1 onboard RS-232 transceiver with configuration jumper
- Tact switches for manual reset and external interrupt of the processor
- Four sets of 16 probing points around VRS51L2070/VRS51L3074 device
- 22x2 header alongside prototyping area to access QFP-44 device pins (header pin number corresponds to device pin number)
- 32x2 header alongside prototyping area to access QFP-64 device pins (header pin number corresponds to the device pin number)
- Character LCD interface header footprint
- External crystal footprint
- 8 uncommitted user LEDs
- Onboard 3.3V regulator with power-on LED
- Optional regulator footprint 1.1

### Kit includes:

- Development board that supports the VRS51L2070 or VRS51L3074
- Versa-JTAG programming/debugging interface
- DB25 Parallel Cable
- Power supply



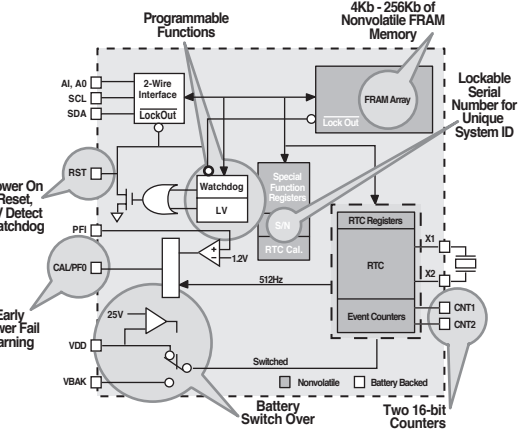
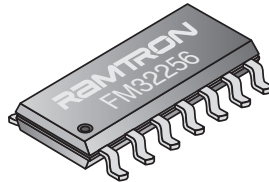
MOUSER STOCK NO.	Ramtron Part No.	Description	Price Each
877-VERSAKIT-20XX	VERSAKIT-20XX	Development Kit for the VRS51C2070	99.00
877-VERSAKIT-30XX	VERSAKIT-30XX	Development Kit for the VRS51C3074	99.00
877-VERSA-JTAG	VERSA-JTAG	Programming/Debugging Interface for the VRS51C2070/VRS51C3074	49.00

## RAMTRON PROCESSOR COMPANIONS

Ramtron's Processor Companion is a complete support and peripheral solution with highly integrated functions for processor-based systems. Never before has a solution combined the fast read/write performance and unlimited endurance of nonvolatile FRAM (ferroelectric random access memory) with a real-time clock (RTC), processor supervisor and other common peripherals. In addition to memory (not included in the FM4005) and a RTC (not included in the FM32XX series), these devices include commonly needed CPU support functions such as programmable low-VDD reset, programmable watchdog timer, nonvolatile event counter, lockable 64-bit serial number area and early power-fail warning (NMI) interrupt. Complementary but distinct functions share a common 2-wire interface eliminating the need for multiple devices.

### Features:

- High integration device replaces multiple parts
- Serial non-volatile memory (except FM4005-G)
- Real-time clock (RTC) (except FM32XX series)
- Low voltage reset
- Watchdog timer
- Early power-fail warning interrupt/NMI
- Two 16-bit event counters
- Serial number with write-lock for security



◆ Surface Mount Device For quantities of 1000 and up, call for quote.

MOUSER STOCK NO.	Ramtron Part No.	Case Type	Memory	RTC	RTC Alarm	Power Monitor	Watch Dog Timer	Early Power Fail	Serial Number	Battery Switch Over	Event Detect	Supply Voltage (V)	Price Each			
													1	25	100	500
<b>Full Featured MCU Companion (2-Wire Interface)</b>																
◆ 877-FM3104-G	FM3104-G	SOIC-14	4K	Yes	No	Yes	Yes	Yes	Yes	Yes	Count	2.7 - 5.5	4.64	4.43	4.01	3.80
◆ 877-FM3116-G	FM3116-G	SOIC-14	16K	Yes	No	Yes	Yes	Yes	Yes	Yes	Count	2.7 - 5.5	5.17	4.94	4.47	4.23
◆ 877-FM3164-G	FM3164-G	SOIC-14	64K	Yes	No	Yes	Yes	Yes	Yes	Yes	Count	2.7 - 5.5	6.05	5.78	5.23	4.95
◆ 877-FM31256-G	FM31256-G	SOIC-14	256K	Yes	No	Yes	Yes	Yes	Yes	Yes	Count	2.7 - 5.5	8.32	7.94	7.18	6.80
<b>MCU Companion without Real-Time Clock (2-Wire Interface)</b>																
◆ 877-FM3204-G	FM3204-G	SOIC-14	4K	No	No	Yes	Yes	Yes	Yes	Yes	Count	2.7 - 5.5	3.72	3.55	3.21	3.04
◆ 877-FM3216-G	FM3216-G	SOIC-14	16K	No	No	Yes	Yes	Yes	Yes	Yes	Count	2.7 - 5.5	4.27	4.07	3.69	3.49
◆ 877-FM3264-G	FM3264-G	SOIC-14	64K	No	No	Yes	Yes	Yes	Yes	Yes	Count	2.7 - 5.5	4.93	4.70	4.26	4.03
◆ 877-FM32256-G	FM32256-G	SOIC-14	256K	No	No	Yes	Yes	Yes	Yes	Yes	Count	2.7 - 5.5	7.24	6.91	6.25	5.92
<b>MCU Companion without Non-Volatile Memory (2-Wire Interface)</b>																
◆ 877-FM4005-G	FM4005-G	SOIC-14	-----	Yes	No	Yes	Yes	Yes	Yes	Yes	Count	2.7 - 5.5	2.93	2.79	2.53	2.39

MCU/MCU

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