

OKI Semiconductor

nX Series Microcontrollers

nX 64K Microcontrollers

Parameters		MSM64162	MSM64162D	MSM64164C	MSM64431	MSM64152	MSM64153
Operating Cond.	Power Supply (V)	1.5 / 3.0	1.5 / 3.0	1.5 / 3.0	5.0	1.5 / 3.0	1.5 / 3.0
	Current (typ)	1.5 μ A at HALT	1.5 μ A at HALT	1.5 μ A at HALT	1 mA	2.0 μ A at HALT	2.0 μ A at HALT
	Clock (kHz)	32.768 / 400	32.768	32.768 / 400	4.2 MHz	32.768	32.768
	Ambient Temp (° C)	-40 to +85	-40 to +85	-40 to +85	-40 to +85	-40 to +85	-40 to +85
Memory	ROM Size	2016 x 8	2016 x 8	4064 x 8	1024 x 8	1504 x 8	3040 x 8
	RAM Size	128 x 4	128 x 4	256 x 4	64 x 4	128 x 4	160 x 4
LCD Drivers		20x4 = 80, 21x3 = 63 22x2 = 44	20x4 = 80, 21x3 = 63 22x2 = 44	30x4 = 120, 31x3 = 93 32 x2 = 64	–	26x4 = 104, 26x3 = 78	36x4 = 144, 36x3 = 108
Ports	Input	4	4	4	4	4	6
	Output	4 + [8] (mask option)	4 + [8] (mask option)	4 + [8] (mask option)	4	4	–
	I/O	8	8	12	4	4	8
IRQ	Internal Interrupt	7	7	4	3	5	6
	External Interrupt	2	2	4	1	2	4
Function	A/D	3ch R/C-OSC	2ch R/C-OSC	3ch R/C-OSC	8-bit, 4ch	–	–
	Serial I/O	–	–	Sync : 1	–	–	–
	Melody / BZ	BZ : 1	BZ : 1	BZ : 1	–	Melody : 1	Melody : 2
	Other	Capture circuit : 2 Battery chk circuit, WDT	Capture circuit : 2 Battery chk circuit, WDT	Capture circuit : 2 5-V interface, WDT		Capture circuit : 2	Capture circuit : 2 8-bit counter : 1
Package Options		Chip, 80/QFP, 64/QFP	Chip, 80/QFP, 64/QFP	CHIP, 80/QFP	24/DIP, 24/SOP	Chip, 60/QFP	Chip, 80/QFP
OPT Version		–	–	MSM64P164 ^[1]	–	–	MSM64P153 ^[1]
Development System		EASE64162/164	EASE64162/164	EASE64162/164	EASE64431	EASE64158	EASE64158

1. Under Development

nX 65K Microcontrollers

Parameters		MSM65512A	MSM65513	MSM65514	MSM65516	MSM65524	MSM65x227
Operating Cond.	Power Supply (V)	2.7 ~ 5.5 (\leq 5 MHz) / 4.5 ~ 5.5 (\leq 10 MHz) / 4.75 ~ 5.25 (\leq 12 MHz)				3.0 ~ 5.5	4.5 ~ 5.5
	Active Current (typ)	15 mA	20 mA	20 mA	20 mA	20 mA	20 mA
	Clock (MHz)	10	10	10	10	10	6
	Ambient Temp (° C)	-40 to +85	-40 to +85	-40 to +85	-40 to +85	-40 to +85	-40 to +85
Min. Instruction Cycle (ns)		800/400/333	800/400/333	800/400/333	800/400/333	800/400/333	667
Memory	ROM Size	8K x 8	8K x 8	16K x 8	32K x 8	16K x 8	–
	RAM Size	256 x 8	256 x 8	384 x 8	640 x 8	384 x 8	1K x 8
	Max. Std. Memory	64K x 8	64K x 8	64K x 8	60K x 8	64K x 8	60K x 8
	EEPROM	–	–	–	–	–	4K x 8
Ports	Input	–	8	8	8	8	4
	Output	–	–	–	–	–	–
	I/O	32	48	48	48	44	44
IRQ	Internal Interrupt	12	12	12	12	16	8
	External Interrupt	3	3	3	3	3	2
Function	Timer/Counter ^[1]	8-bit timer: 3 16-bit timer: 1 WDT, TBC, FRC	8-bit timer: 3 16-bit timer: 1 WDT, TBC, FRC	8-bit timer: 3 16-bit timer: 1 WDT, TBC, FRC	8-bit timer: 3 16-bit timer: 1 WDT, TBC, FRC	8-bit timer: 4 16-bit timer: 1 WDT, TBC, FRC	8-bit timer: 2 16-bit timer: 1 WDT, TBC, WUT
	Serial I/O	Sync: 1 Sync/UART : 1	Sync: 1 Sync/UART : 1	Sync: 1 Sync/UART : 1	Sync: 1 Sync/UART : 1	Sync: 1 Sync/UART : 1	Sync/UART : 1
	A/D	–	–	–	–	8-bit / 8 ch	8-bit / 4 ch
	PWM	–	–	–	–	8-bit / 2 ch	–
	LCD	–	–	–	–	–	–
	Other	–	–	–	–	–	Dual Clock 6 MHz / 32 kHz
Package Options		40/DIP, 44/QFP, 64/QFP, 44/PLCC	64/SDIP, 64/QFP, 68/PLCC	64/SDIP, 64/QFP, 68/PLCC	64/SDIP, 64/QFP, 68/PLCC	64/SDIP, 64/QFP, 68/PLCC	100/TQFP
OPT Version		MSM65P512	MSM65P513	MSM65P514	MSM65P516	MSM65P524	–
Development System		OMFICE65524 / ADSVICE (YDC)					OMFICE65227

1. WDT = Watch-Dog Timer. TBC = Time-Based Counter. FRC = Free Running Counter (capture in/capture out). WUT = CPU Wake-Up Timer.

OKI Semiconductor

nX Series Microcontrollers

nX 66K Microcontrollers

Parameters		MSM66101	MSM66201/A	MSM66207A	MSM66507 ^[1]	MSM66509 ^[1]
Operating Cond.	Power Supply (V)	4.5 ~ 5.5	4.5 ~ 5.5	4.5 ~ 5.5	4.5 ~ 5.5	4.5 ~ 5.5
	Active Current (typ)	20 mA	20 mA	20 mA	TBD	TBD
	Clock (MHz)	10	10	10	32	32
	Ambient Temp (° C)	-40 to +85	-40 to +85	-40 to +85	-40 to +85	-40 to +85
Min. Instruction Cycle		400 ns	400 ns	400 ns	125 ns	125 ns
Memory	Internal ROM Size	12K x 8	16K x 8	32K x 8	48K x 8	64K x 8
	ROM (max)	64K x 8	64K x 8	64K x 8	64K x 8	64K x 8
	Internal RAM Size	384 x 8	512 x 8	1024 x 8	1536 x 8	2048 x 8
	RAM (max)	64K x 8	64K x 8	64K x 8	64K x 8	64K x 8
Ports	Input	8	8	8	—	—
	Analog Input	—	—	—	10	16
	I/O	40	40	40	59	92
IRQ	Internal Interrupt	9	18	18	28	32
	External Interrupt	3	3	3	3	3
Function	8-Bit Timer	1	2	2	4	4
	16-Bit Multi-Timer	2	4	4	12	14
	PWM	12-bit / 2-ch	16-bit / 2-ch	16-bit / 2-ch	16-bit / 4-ch	16-bit / 6-ch
	10-Bit A/D	8ch	8ch	8ch	10ch	16ch
	Serial I/O	UART : 1	Sync. / UART : 1	Sync. / UART : 1	UART: 1 Sync. / UART : 1	UART: 1 Sync. / UART : 1
	WDT	1	1	1	1	1
Package Options		64/SDIP, 68/PLCC	64/SDIP, 68/PLCC	64/SDIP, 64/QFP, 68/PLCC	84/ PLCC	128/QFP
OPT Version		MSM66P201	MSM66P201	MSM66P207	MSM66P507 ^[1]	MSM66P509 ^[1]
Development System		EASE66201	EASE66201	EASE66201	EASE66507 ^[1]	EASE66509 ^[1]

1. Under Development