

Feature/Product	General Purpose MCU				
	CS8969, IS32CS8969**	IS31CS8973, IS32CS8973**	CS8967A	CS8964	CS6257
8-bit 8051 CPU Core/32-bit RISC Core	1T 8051, 25MHz, /w MDU (16MHz Zero Wait State)	1T 8051, 25MHz, /w MDU (16MHz Zero Wait State)	1T 8051, 24MHz, /w MDU (16MHz Zero Wait State)	1T 8051, 25MHz, /w MDU (16MHz Zero Wait State)	MIPS-X, 125MHz, /w unified DSP instructions
Flash	32KB	32KB	128KB	64KB	128KB (can use external SPI Flash memory for expansion)
RAM	1KB	1KB	6KB	2KB	64KB
Cache Controller's Cache Size					16KB
EEPROM (Data Flash)	Y	Y	Y	Y	Y
ISP / IAP / Debug	Y(SW) / Y / Y	Y(SW) / Y / Y	Y(SW) / Y / Y	Y(SW) / Y / Y	Y(SW) / Y / Y(E-JTAG)
ADC	12-bit SARAD- Cx16-channel (/w PGA)	12-bit SARAD- Cx16-channel (/w PGA)	12-bit SARADCx10- channel	12-bit SARADCx16- channel 2-ch can be triggered by PWM16 1 special channel /w PGA	12-bit SARADCx8-channel 10us conversion time; 12-bit pipeline ADCx5-channel 3us conversion time Analog window comparators/ thresholdsx5-channel OPAMP for channel A
VDAC	10-bit x 1	12-bit x 1	10-bit x 1	10-bit x 1	
PWM (PCA)	8-/16-bit PWMx6, /w PCA	16-bit PWMx6, /w PCA 8-bit PWMx12	8-/16-bit PCAx6 16-bit PWMx1	8-/16-bit PWMx6, /w PGA For Motor Control Design	16-bit PWMx6(3 complimentary, dead time, 6 ADC triggering pointers and interrupts), /w PCA For Motor Control Design; 14-bit PWMx1 /w FG counter For DC Fan Control Design; 16-bit PWMx2(2 ADC triggering pointers and interrupts), /w PCA (synchronized /w motor PCA) For PFC Control Design
I/O (Max.)	Up to 20 (24-pin package)	Up to 20 (24-pin package)	42	Up to 28 (32-pin package)	Up to 29 (64-pin package)
Master / Slave I2C	1/1	1/1	0/2	1/2	1/1
UART/LIN	1/1	1/1	1/1	1/1	3/3
SPI	1	1	1	1	1

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RTC			Y (No isolated RTC VDD)	Y (No isolated RTC VDD)	
LVD and LVR	Y (2.0~4.5V)	Y (2.0~4.5V)	Y	Y	Y
Internal OSC / PLL	Y (16MHz, 32KHz) No external X'tal	Y (16MHz, 32KHz) No external X'tal	Y (16MHz, 100KHz)	Y (16MHz, 100KHz)	N (8~16MHz X'tal, 125MHz PLL)
On-Chip Power On Reset					
Timer / Counter	16-bit x 5 24-bit x 1 30-bit WDT	16-bit x 5 24-bit x 1 30-bit WDT	16-bit x 3 24-bit x 1 30-bit WDT	16-bit x 5 24-bit x 1 30-bit WDT	32-bit x 2 16-bit x 2 32-bit WDT
DPTR	2	2	2	2	
CEC@HDMI Controller			Y		
PGA	Y (as 12-bit SARADC front- end)	Y (as 12-bit SARADC front- end)		Y (7X)	Y (as 12-bit pipeline ADC front-end)
Temperature Sensor	Y	Y	Y	Y	Y
Clock Output					
Cap. Touch Key	20 (TK1)	19 (TK1, TK2 charge transfer type)			
Buzzer Generator	Y	Y			
Parallel In Serial Out Shift Register					
Analog Comparator	4	4	4	4 Linked to PWM16 for emergency stop	10 Linked to 12-bit pipeline ADC for thresholds
Analog Switch					
Power Saving Mode	Y(< 20uA) (Wake-up noise filter: Up to 4ms)	Y(< 20uA) (Wake-up noise filter: Up to 4ms)	Y(< 20uA)	Y(< 20uA)	N
Power	+2.2~+5.5V	+2.2~+5.5V	+2.5~+5.5V	+2.5~+5.5V	+3.0~+5.5V
Package	TSSOP-24/20/16, QFN-24	TSSOP-24/20/16	LQFP-48	LQFP-32/QFN-32/ TSSOP-24	LQFP-64, LQFP-48
General Spec.	-40°C~ +85°C Operating Temperature, RoHS Compliance ** -40°C~ +105°C				

Feature / Product	CAN Bus MCU			Ethernet MCU	STN-LCD/LED (Matrix) Drive MCU
	CS8959	CS8961	CS8968A	IS31CS6210	CS5523
8-bit 8051 CPU Core/32-bit RISC Core	1T 8051, 20MHz, /w MDU	1T 8051, 20MHz, /w MDU	1T 8051, 24MHz, /w MDU (16MHz Zero Wait State)	1T 8051, 125MHz(PLL), /w MDU	1T 8051, 16MHz
Flash/Program SRAM	171KB (ECC)	171KB (ECC)	128KB	128KB 16KB Program SRAM External SPI Flash(50MHz, DMA): 512KB~16MB	64KB
RAM	4352B (ECC)	4352B (ECC)	6KB	60KB	2KB
EEPROM (Data Flash)	N	N	Y	Y	Y
ISP / IAP / Debug	Y / N	Y / N	Y(SW) / Y / Y	Y / Y / Y	Y / Y / Y
ADC	12-bit SARADC x13-channel	12-bit SARADC x6-channel	12-bit SARADC x10-channel	12-bit SARADC x8-channel	12-bit SARADCx16-channel 128us@1.8~2.4V/16us@2.5~5.5V conversion time
VDAC			10-bit x 1		
PWM (PCA)	8-bit PWMx7, 14-bit x2	8-bit PWMx6, 14-bit x2	8-/16-bit PWMx6, /w PCA 16-bit PWMx1	15-bit PWMx8	16-bit PWMx6, /w PCA 8-bit Window Mode, 8/16-bit PWM Mode
I/O (Max.)	75	39	42	Up to 32 (80-pin package)	37
Master / Slave I2C	1/2	1/1	0/2	1/2	1/2
UART(+EUART)/LIN-Capable EUART	2/0	2/0	1/1	1+(2)/2 (16 bytes FIFO)	1(+2)/1
SPI	1	1	1	1	1
RTC	Y	Y	Y (No isolated RTC VDD)	Y	Y
I2S(TDM) Controller				Y	
LVD and LVR			Y		Y
Internal OSC / PLL			Y (16MHz, 100KHz)	Y (12MHz, 125MHz PLL)	Y (16MHz, 30KHz) / Y
On-Chip Power On Reset					

Feature / Product	CAN Bus MCU			Ethernet MCU	STN-LCD/LED (Matrix) Drive MCU
	CS8959	CS8961	CS8968A	IS31CS6210	CS5523
Timer / Counter	16-bit x 3 26-bit WDT	16-bit x 3 26-bit WDT	16-bit x 3 24-bit x 1 30-bit WDT	16-bit x 3 32-bit WDT	16-bit x 5 24-bit x 1 30-bit WDT
DPTR	2	2	2	2	2
Temperature Sensor			Y		Y
CAN Controller 2.0 A/B	2(/w Gateway)	1	1		
Stepper Motor Driver					
STN-LCD Driver					Y (32/31/30/29/28-Seg / 4/5/6/7/8-Com)
CEC@HDMI Controller			Y		
PGA					Y
Low / Band Pass Filter					
Analog Comparator			4		3
Analog Switch					
Trim-able Vref					Y (1.2V)
Sound/Buzzer Generator					Y
Ethernet				10/100 Base-T MAC+PHY (XON/XOFF, MDIX, CRC, DES)	
USB 2.0 FS Host & PHY				Y (25MHz X'tal=>48MHz PLL)	
SDIO Host				Y (1-/4-bit Host with interrupt support)	
Cap. Touch Key					15-channel T-K
LED Controller					8-Seg / 15-Digit Common Cathode direct drive Up to 8-Com x 28-Seg external drive 64-brightness

Feature / Product	CAN Bus MCU			Ethernet MCU	STN-LCD/LED (Matrix) Drive MCU
	CS8959	CS8961	CS8968A	IS31CS6210	CS5523
Sync. Detection					
DDC / CI Port					
Clock Output	Y	Y		Y	Y
Flash OSD (Font)					
ECC Generation	Y	Y			
JTAG Interface	Y	Y			
Power Saving Mode			Y(< 20uA)	Y	Y(< 25uA)
Power	+5.0V	+5.0V	+2.5~+5.5V	+3.3V	+2.2V~+5.5V
Package	QFP-100	LQFP-64	LQFP-48	LQFP-48/-64/-80	LQFP-64, LQFP-48, QFN-48
General Spec.	-40°C ~ +85°C Operating Temperature, RoHS Compliance				



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