

**x86 MICROPROCESSORS**

Type	Socket compatibility custom	Architecture	Max Frequency (MHz)	Performance (P-rating)	Package custom	Int/ext Clock ratio custom	Supply Voltage (Volt)
ST486DC ASIC core		486DX	133				3.3
ST486DX2-66GS	486DX / DX2	486DX	66		PGA 168	2	5
ST486DX2-80GS	486DX / DX2	486DX	80		PGA 168	2	5
ST486DX4V75HS	486DX4 / 5x86	486DX	75		PGA 168	2 or 3	3.45
ST486DX4V10HS	486DX4 / 5x86	486DX	100		PGA 168	2 or 3	3.45
ST486DX4V12HS	486DX4 / 5x86	486DX	120		PGA 168	2 or 3	3.45
ST5X86V10HS	486DX4 / 5x86	6X86	100		PGA 168	2 or 3	3.45
ST6X86P90+HS	Pentium®	6X86	80	P90+	PGA 296	2 or 3	3.45
ST6X86P120+HS	Pentium®	6X86	100	P120+	PGA 296	2 or 3	3.45
ST6X86P133+HS	Pentium®	6X86	110	P133+	PGA 296	2 or 3	3.45
ST6X86P150+HS	Pentium®	6X86	120	P150+	PGA 296	2 or 3	3.45
ST6X86P166+HS	Pentium®	6X86	133	P166+	PGA 296	2 or 3	3.45

**9400 FAMILY - 4 BIT MCU**

Type	Description	Package
ETC 9410/11/13	CMOS, 0.5K ROM, 32 RAM, 15-19 I/O Lines	PDIP20/24, PSO20/24
ETC 9420/21/22	CMOS, 1K ROM, 64 RAM, 15-23 I/O Lines	PDIP20/24/28, PSO20/24/28
ETL 9410/11/13	NMOS, Low Power, 0.5 K ROM, 15-19 I/O Lines	PDIP20/24, PSO20/24
ETL 9420/21/22	NMOS, Low Power, 15K ROM, 15-23 I/O Lines	PDIP20/24/28, PSO20/24/28
MOLE BRAIN	PC interface board	
MOLE-COPS-IBM	Debugger-Software set	
MOLE-COPS-PB1	Hardware-Emulator Card	
ROMLESS	NSCOP401L-X13, NSCOP402N-5, NSCOP404LSN-5, NSCOP404CN	
PIGGY-BACKS	NSCOP444CP, NSCOP444LP, NSCOP420P	

**EF6801/04/05 FAMILIES - HMOS, 8 BIT MCU**

Type	Description	Package
EF6801U4 EF68HC0J3 EF68HC04P3 EF6805U3/R3	4K ROM, 29 I/O Lines, Enhanced SCI and Timer, Standby RAM, 1MHz 2K ROM, 12 I/O Lines, 8 Bit Timer 2K ROM, 20 I/O Lines, 8 Bit Timer 3.7K ROM, 32 I/O Lines, 8 Bit Timer	PDIP40, PLCC44 PDIP20, PSO20 PDIP28, PSO28, PLCC28 PDIP40, PLCC44

**68000 FAMILY - NMOS, 8 BIT MPU**

Type	Description	Package
EF68A09 EF68A09E EF68B09 EF68B09E EF6803U4 EF6809 EF6809E EF68A21 EF68A40 EF68A50 EF68A54 EF68B21 EF68B40 EF68B50 EF68B54 EF6821 EF6840 EF6850 EF6854 EF6803U4-1P	High Performance MPU, 1.5 MHz 68A09 With External Clock, 1.5 MHz High Performance MPU, 2 MHz 68B09 With External Clock, 2 MHz 6803 With 192 RAM, 1 MHz High Performance MPU, 1 MHz 6809 With External Clock, 1 MHz Peripheral Interface Adapter, 1.5 MHz Programmable Timer, 1.5 MHz Asynchronous Communication Interface Adapter, 1.5 MHz Advanced Data Link Controller, 1.5 MHz Peripheral Interface Adapter, 2 MHz Programmable Timer, 2 MHz Asynchronous Communication Interface Adapter, 2 MHz Advanced Data Link Controller, 2 MHz Peripheral Interface Adapter, 1 MHz Programmable Timer, 1 MHz Asynchronous Communication Interface Adapter, 1 MHz Advanced Data Link Controller, 1 MHz 6803 with 192 RAM, 1.25 MHz	PDIP40 PDIP40 PDIP40 PDIP40 PDIP40 PDIP40 PDIP40 PDIP40 PDIP28 PDIP24 PDIP28 PDIP40 PDIP28 PDIP24 PDIP28 PDIP40 PDIP28 PDIP24 PDIP28 PDIP40 PDIP28 PDIP24 PDIP28 PDIP28

**68000 FAMILY - 16 BIT MPU**

Type	Description	Package
TS68230 MK68564 MK68901 TS68HC901	HMOS, Parallel Interface, Timer, 8 and 10 MHz NMOS, Serial I/O, 4 and 5 MHz NMOS, Multifunction peripheral, 4 and 5 MHz HCMOS, Multifunction peripheral, 4, 5 and 8 MHz	PDIP48, PLCC52 PDIP48, PLCC52 PDIP48, PLCC52 PDIP48, PLCC52

## ST62 FAMILY- CMOS, 8 BIT MCU

This popular family of CMOS single chip microcontrollers is specially tailored to application specific environments. Thanks to its advanced technology this 8 bit MCU family is well suited for analog and digital processing with economy and performance.

All ST6 devices are based on a building block approach. A common core is surrounded by a combination of dedicated on-chip peripherals, e.g.: A/D Converters, Timers, Watchdog, LCD drivers, Operational amplifiers, PLL, D/A Convertors, LED drivers, IR pre-processors, OSD Generators, etc. **The ST62 series are designed for general purpose, industrial control, consumer and automotive applications. The ST63 series is specially designed for TV applications.** Different RAM sizes and ROM from 2K to 8K are available, together with EPROM and OTP versions. Devices with data EEPROM on-chip are also available. The instruction set is designed for byte-efficient program storage and includes bit manipulation and conditional jump instructions.

### ST62 SERIES (General Purpose)

Device	Program Memory	RAM x 8	EEPROM x 8	I/Os (High Current)	ADC channels	Timer ERR	AR Timer	Serial Interface	Package
ST6200B	1K ROM	64	-	9 (3)	4	1	-	-	DIP16/ SO16
ST62T00	1K OTP	64	-	9 (3)	4	1	-	-	DIP16/ SO16
ST6201B	2K ROM	64	-	9 (3)	4	1	-	-	DIP16/ SO16
ST62E01	2K EPROM	64	-	9 (3)	4	1	-	-	DIP16/ SO16
ST62T01	2K OTP	64	-	9 (3)	4	1	-	-	DIP16/ SO16
ST6203B	1K ROM	64	-	9 (3)	-	1	-	-	DIP16/ SO16
ST62T03	1K OTP	64	-	9 (3)	-	1	-	-	DIP16/ SO16
ST6208B	1K ROM	64	-	12 (4)	-	1	-	-	DIP20/ SO20
ST62T08	1K OTP	64	-	12 (4)	-	1	-	-	DIP20/ SO20
ST6209B	1K ROM	64	-	12 (4)	4	1	-	-	DIP20/ SO20
ST62T09	1K OTP	64	-	12 (4)	4	1	-	-	DIP20/ SO20
ST6210B	2K ROM	64	-	12 (4)	8	1	-	-	DIP20/ SO20
ST6210BX3*	2K ROM	64	-	12 (4)	8	1	-	-	DIP20/ SO20
ST62T10	2K OTP	64	-	12 (4)	8	1	-	-	DIP20/ SO20
ST6215B	2K ROM	64	-	20 (4)	16	1	-	-	DIP28/ SO28
ST6215BX3*	2K ROM	64	-	20 (4)	16	1	-	-	DIP28/ SO28
ST62T15	2K OTP	64	-	20 (4)	16	1	-	-	DIP28/ SO28
ST6220B	4K ROM	64	-	12 (4)	8	1	-	-	DIP20/ SO20
ST6220BX3*	4K ROM	64	-	12 (4)	8	1	-	-	DIP20/ SO20
ST62E20	4K EPROM	64	-	12 (4)	8	1	-	-	DIP20/ SO20
ST62T20	4K OTP	64	-	12 (4)	8	1	-	-	DIP20/ SO20
ST6225B	4K ROM	64	-	20 (4)	16	1	-	-	DIP28/ SO28
ST6225BX3*	4K ROM	64	-	20 (4)	16	1	-	-	DIP28/ SO28
ST62E25	4K EPROM	64	-	20 (4)	16	1	-	-	DIP28/ SO28
ST62T25	4K OTP	64	-	20 (4)	16	1	-	-	DIP28/ SO28
ST6240	8K ROM	216	128	16 (4)	12	2	-	SPI	QFP80
ST62E40	8K EPROM	216	128	16 (4)	12	2	-	SPI	QFP80
ST62T40	8K OTP	216	128	16 (4)	12	2	-	SPI	QFP80
ST6242	8K ROM	152	-	10 (4)	6	1	-	SPI	QFP64
ST62E42	8K EPROM	152	-	10 (4)	6	1	-	SPI	QFP64
ST62T42	8K OTP	152	-	10 (4)	6	1	-	SPI	QFP64
ST6245	4K ROM	140	64	11 (4)	7	2	-	SPI	QFP52
ST62E45	4K EPROM	140	64	11 (4)	7	2	-	SPI	QFP52
ST62T45	4K OTP	140	64	11 (4)	7	2	-	SPI	QFP52
ST6253B	2K ROM	64	-	13 (6)	7	1	1x8- bit	-	DIP20/ SO20
ST62T53B	2K OTP	64	-	13 (6)	7	1	1x8- bit	-	DIP20/ SO20
ST6260B	4K ROM	128	128	13 (6)	7	1	1x8- bit	SPI	DIP20/ SO20
ST6260B	4K ROM	128	128	13 (6)	7	1	1x8- bit	SPI	DIP20/ SO20
ST6260BX3*	4K ROM	128	128	13 (6)	7	1	1x8- bit	SPI	DIP20/ SO20
ST6263B	2K ROM	64	64	13 (6)	7	1	1x8- bit	-	DIP20/ SO20
ST62T63B	2K OTP	64	64	13 (6)	7	1	1x8- bit	-	DIP20/ SO20
ST6265B	4K ROM	128	128	21 (8)	13	1	1x8- bit	SPI	DIP28/ SO28
ST6265BX3*	4K ROM	128	128	21 (8)	13	1	1x8- bit	SPI	DIP28/ SO28
ST62E65B	4K EPROM	128	128	21 (8)	13	1	1x8- bit	SPI	DIP28/ SO28
ST62T65B	4K OTP	128	128	21 (8)	13	1	1x8- bit	SPI	DIP28/ SO28
ST6280	8K ROM	320	128	22 (10)	12	2	1x8- bit	SPI + UART	QFP100
ST62E80	8K EPROM	320	128	22 (10)	12	2	1x8- bit	SPI + UART	QFP100
ST62T80	8K OTP	320	128	22 (10)	12	2	1x8- bit	SPI + UART	QFP100
ST6285	8K ROM	288	-	12 (4)	8	1	-	SPI + UART	QFP80
ST62E85	8K EPROM	288	-	12 (4)	8	1	-	SPI + UART	QFP80
ST62T85	8K OTP	288	-	12 (4)	8	1	-	SPI + UART	QFP80

\* With automotive temperature range

## ST62 FAMILY- CMOS, 8 BIT MCU (Cont'd)

## ST6 FAMILY DEVELOPMENT TOOLS

Device	EPROM Programmer			Emulator		Starter Kit
	Single Eprom	Complete Gang	Gang Adaptor	Complete	Dedication Board	
ST620X ST621X ST622X	ST62E1X-EPB/110 ST62E1X-EPB/220	ST62E10-GP/SO ST62E10-GP/DIP ST62E15-GP/SO ST62E15-GP/DIP	ST62E10-GPA/SO ST62E10-GPA/DIP ST62E15-GPA/SO ST62E15-GPA/DIP	ST626X-EMU2	ST626X-DBE	ST622X-KIT
ST623X*	ST62E3X-EPB/110 ST62E3X-EPB/220	ST62E30-GP/DIP ST62E32-GP/DIP ST62E30-GP/SO	ST62E30-GPA/DIP ST62E32-GPA/DIP ST62E30-GPA/SO	ST623X-EMU2	ST623X-DBE	
ST624X	ST62E4X-EPB/110 ST62E4X-EPB/220	ST62E40-GP/QFP ST62E42-GP/QFP ST62E45-GP/QFP	ST62E40-GPA/QFP ST62E42-GPA/QFP ST62E45-GPA/QFP	ST624X-EMU2 ST6240-EMU2 ST6242-EMU2 ST6245-EMU2	ST624X-DBE	ST6240-KIT
ST626X	ST62E6X-EPB/110 ST62E6X-EPB/220	ST62E60-GP/SO ST62E60-GP/DIP ST62E65-GP/SO ST62E65-GP/DIP	ST62E60-GPA/SO ST62E60-GPA/DIP ST62E65-GPA/SO ST62E65-GPA/DIP	ST626X-EMU2	ST626X-DBE	ST626X-KIT
ST628X	ST62E8X-EPB/110 ST62E8X-EPB/220	ST62E80-GP/QFP	ST62E80-GPA/QFP	ST628X-EMU2	ST628X-DBE	
ST636X/7X/8X	ST63E1X-EPB/220	ST63E87-GP/DIP		ST638X-EMU	ST638X-DBE	
ST6369		ST63E69-GP/DIP				
ST631XX						

\* For further Information please contact our Marketing

DEVICES	SOFTWARE TOOLS	DESCRIPTION
ALL	ST6-SW/PC	Macro-assembler, Linker and Simulator
ALL	ST6-FUZZY/PC	Fuzzy logic compiler
ALL	ST6-REALIZER/PC	Development based on graphical description

## ST63 MICROCONTROLLER FAMILY - CMOS, 8 BIT MCU

This family of CMOS single chip microcontrollers is specially tailored to application specific environment. Thanks to its advanced technology this 8 bit MCU family is well suited for analog and digital processing with economy and performance.

All ST6 devices are based on a building block approach. A common core is surrounded by a combination of dedicated on-chip peripherals, e.g.: A/D Converters, Timers, Watchdog, LCD drivers, Operational amplifiers, PLL, D/A, LED driver, IR pre-processors, OSD Generators, Voltage Synthesis etc. **The 62 series are designed for general purpose, industrial control, consumer and automotive applications. The ST63 series is especially designed for TV, SVR (Satellite Video Receiver) and Monitor applications.** Different ROM/RAM sizes, from 8K to 20K ROM are available together with EPROM and OTP versions. Devices with data EEPROM on-chip are also available. The instruction set is designed for byte-efficient program storage and includes bit manipulation and conditional jump instructions.

### ST63 SERIES

Devices	Program Memory	RAM x 8	EEPROM	Package	Timers	I/O Ports	D/A Outputs
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#### ST631xx Family for TV and Satellite Video Receiver

ST63126BB1/XX	8K ROM	256	128	PDIP40	2x8 Bit + WD	11	4 x 6 Bit
ST63156BB1/XX	8K ROM	256	128	PDIP40	2x8 Bit + WD	12	4 x 6 Bit
ST63E156D1/XX	8K EPROM	256	128	CDIP40W	2x8 Bit + WD	12	Up to 4 x 6 Bit
ST63T156B1/XX	8K OTP	256	128	PDIP40	2x8 Bit + WD	12	Up to 4 x 6 Bit

#### ST636/7/8x Family for TV and Satellite Video Receiver

ST6365BB1/XX	8K ROM	256	384	PSDIP42	2x8 Bit + WD	22	4 x 6 Bit
ST6375BB1/XX	14K ROM	256	384	PSDIP42	2x8 Bit + WD	22	4 x 6 Bit
ST6385BB1/XX	20K ROM	256	384	PSDIP42	2x8 Bit + WD	22	4 x 6 Bit
ST63E85D1	20K EPROM	256	384	CSDIP42W	2x8 Bit + WD	22	4 x 6 Bit
ST63T85B1/XX	20K OTP	256	384	PSDIP42	2x8 Bit + WD	22	4 x 6 Bit
ST6367BB1/XX	8K ROM	256	384	PSDIP42	2x8 Bit + WD	20	6 x 6 Bit
ST6377BB1/XX	14K ROM	256	384	PSDIP42	2x8 Bit + WD	20	6 x 6 Bit
ST6387BB1/XX	20K ROM	256	384	PSDIP42	2x8 Bit + WD	20	6 x 6 Bit
ST63E87D1	20K EPROM	256	384	CSDIP42W	2x8 Bit + WD	20	6 x 6 Bit
ST63T87B1/XX	20K OTP	256	384	PSDIP42	2x8 Bit + WD	20	6 x 6 Bit

#### ST63 Family for Monitor

ST6369BB1/XX	8K ROM	256	384	PDIP40	2x8 Bit + WD	21	6x6 Bit + 1x14 Bit
ST63E69D1/XX	8K EPROM	256	384	CDIP40W	2x8 Bit + WD	21	6x6 Bit + 1x14 Bit
ST63T69B1	8K OTP	256	384	PDIP40	2x8 Bit + WD	21	6x6 Bit + 1x14 Bit
ST6371J1B1/XXX	8K ROM	256	192 + 128 (DDC)	PSDIP42	2x8 Bit + WD	20	9x7 Bit + 1x14 Bit
ST6371J2B1/XXX	8K ROM	256	384 + 128 (DDC)	PSDIP42	2x8 Bit + WD	20	9x7 Bit + 1x14 Bit
ST6371J3B1/XXX	12K ROM	256	384 + 128 (DDC)	PSDIP42	2x8 Bit + WD	20	9x7 Bit + 1x14 Bit
ST6371J5B1/XXX	16K ROM	256	384 + 128 (DDC)	PSDIP42	2x8 Bit + WD	20	9x7 Bit + 1x14 Bit
ST63E71J5D1/XXX	16K EPROM	256	384 + 128 (DDC)	CSDIP42W	2x8 Bit + WD	20	9x7 Bit + 1x14 Bit
ST63T71J5B1/XXX	16K OTP	256	384 + 128 (DDC)	PSDIP42	2x8 Bit + WD	20	9x7 Bit + 1x14 Bit

Note: Standard features include 5V+/-10% operating voltage, 6,5µs typical instruction time, 8 MHz maximum Frequency, one SPI and one Watchdog. All TV and SVR devices with 128 characters in two OSD Backs.  
 xxx: Customer ROM Code Number.

## ST72 FAMILY - CMOS, 8 BIT MCU

The ST72 family of CMOS single chip microcontroller is based around an industry standard and powerful 8-bit core. Its advanced thin technology associated with its familiar and efficient instruction set leads to high performance and low cost applications.

All ST72 products have a building cell approach, the common ST72 core is surrounded by a combination of dedicated on-chip peripherals, e.g. Timers, A/D and D/A converters, PWM, wave generator, synchro processor East-West Pin Cushion Automatic correction and RDS processor.

The ST72 is designed for customer specified applications with cost effective different RAM sizes and ROM from 3K to 48K bytes, available with Eprom and OTP versions for instant prototyping and code validation. Devices with EEprom on-chip are also available for integrated data storage.

## ST72 SERIES

Device	Program Memory	RAM x 8	EEPROM x 8	Package	I/O Ports	Other Features
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### ST7291 Family for Remote Control

ST7291C4B1	16K ROM	256	None	PDIP28	19	WAKE-UP FUNCTION + LOW VOLTAGE STANDBY MODES+WD + POWER SAVING
ST7291C4M1	16K ROM	256	None	PSO28	19	
ST7291C5B1	24K ROM	384	None	PDIP28	20	
ST7291C5M1	24K ROM	384	None	PSO28	20	
ST7291C6B1♦	32K ROM	384	None	PDIP28	20	
ST7291C6M1♦	32K ROM	384	None	PSO28	20	
ST72E91C4F0	16K EPROM	256	None	CDIP28W	19	
ST72E91C6F0♦	32K EPROM	384	None	CDIP28W	20	
ST72T91C4B1	16K OTP	256	None	PDIP28	19	
ST72T91C4M1	16K OTP	256	None	PSO28	19	
ST72T91C6B1♦	32K OTP	384	None	PDIP28	20	
ST72T91C6M1♦	32K OTP	384	None	PSO28	20	

### ST7294 Family for Telephone Set

ST7294C6B1	6K ROM	224	256	PDIP28	22	WAKE-UP FUNCTION + POWER SAVING STANDBY MODES+WD
ST7294C6M1	6K ROM	224	256	PSO28	22	
ST7294C6B6	6K ROM	224	256	PDIP28	22	
ST7294C6M6	6K ROM	224	256	PSO28	22	
ST72E94C6F0	6K EPROM	224	256	CDIP28W	22	
ST72T94C6B6	6K OTP	224	256	PDIP28	22	
ST72T94C6M6	6K OTP	224	256	PSO28	22	

### ST7271 Family for TV/Monitor

ST7271N1B1 (**)	8K ROM	192	384	PSDIP56	35	ADC+PWM+SPI + WAKE UP FUNCTION + SYNC. PROCESSOR + EWPC PROCESSOR. + STANDBY MODES + POWER SAVING + STANDBY MODES
ST7271N2B1 (**)	8K ROM	256	512	PSDIP56	35	
ST7271N3B1 (**)	12K ROM	256	512	PSDIP56	35	
ST7271N5B1 (**)	15K ROM	256	512	PSDIP56	35	
ST72E71N5D0 (**)	15K EPROM	256	512	CSDIP56W	35	
ST72T71N5B1 (**)	15K OTP	256	512	PSDIP56	35	
ST7272 (**)	24K ROM	384	896	SDIP56	27	UPGRADE FROM ST7271 FULL DDC FUNCTION UPGRADED SYNC. PROCESSOR

Note : Standard features include 0.5µs typical instruction time & 4 to 8 MHz maximum Frequency.

♦ Under development .

(\*\*) Please consult Marketing office for Availability.

**ST72 FAMILY - CMOS, 8-BIT MCU (Cont'd)**
**ST72 FAMILY DEVELOPMENT TOOLS**

Device	Starter Kit	Emulator	EPROM Programmer	GANG Programmer	Other
ST7294C6M ST7294C6B	None None	ST7294-EMU ST7294-DBE	ST72E94-EPB/110 ST72E94-EPB/220	ST72E94-GP/(SO28) ST72E94-GP/DIP (Q4-1995)	ST7-SW/PC ST7-SWCHI/PC ST7-SWDHI/PC
ST7291C4M1 ST7291C4B1 ST7291C5M1 ST7291C5B1	None None None None	ST7291-EMU ST7291-DBE	ST72E91-EPB/110 ST72E91-EPB/220	ST72E91-GP/SO28	
ST7271NXB1	None	ST7271-EMU ST7271-DBE	ST72E71-EPB/110 ST72E71-EPB/220	ST72E71-GP/DIP56	
ST7272	None	ST7272-EMU ST7272-DBE			

## ST90 FAMILY - HIGH PERFORMANCE - HCMOS 8/16-BIT MCU

SGS-THOMSON's ST9 microcontroller family was designed to meet the performance and flexibility requirements of medium and high-end Applications in Automotive, Consumer, Industrial and Telecom Segments.

Available in a wide range of memory and peripheral combination, ST9 devices are build around an 8-Bit Core with 16-Bit instruction capabilities. Modularity ensures software compatibility between family members.

The smart and powerful peripherals, including DMA capabilities as well as original features such as an Analog Watch-Dog, provide designers with cost effective hardware solutions to their Real Time needs.

Software engineers will benefit from the rich set of instructions and addressing modes, easing the generation of dense and efficient codes.

Comprehensive development tools ranging from low cost Starter Kits to Real Time full capability Emulation Systems allow effective Application developments.

ST9 devices are manufactured using SGS-THOMSON's proprietary Multi-Purpose CMOS Technology, which provides fully compatible EPROM and OTP devices (including on chip high reliability EEPROM) for prototyping and pre-production, and low cost ROM devices for volume Production.

## ST90 SERIES

Devices	Program Memory	RAM x 8 + REG	EEPROM x 8	Package	Timers	Serial Interface	I/O Ports	A/D* Inputs	Other Features
ST9036	16K ROM	256 + 224	None	PLCC68	2x16Bit+WD	SPI + SCI	56	8x8Bit	HSHK + DMA
ST90T36	16K OTP	256 + 224	None	PLCC68	2x16Bit+WD	SPI + SCI	56	8x8Bit	HSHK + DMA
ST9040	16K ROM	256 + 224	512	PLCC68/PQF80	2x16Bit+WD	SPI + SCI	56	8x8Bit	HSHK + DMA
ST90R40	None	256 + 224	512	PLCC68	2x16Bit+WD	SPI + SCI	40+16	8x8Bit	HSHK + DMA
ST90E40	16K EPROM	256 + 224	512	CLCC68-W/CQFP80-W	2x16Bit+WD	SPI + SCI	56	8x8Bit	HSHK + DMA
ST90T40	16K OTP	256 + 224	512	PLCC68/PQFP80	2x16Bit+WD	SPI + SCI	56	8x8Bit	HSHK + DMA
ST90R50	None	224	None	PQFP80/PLCC84	3x16Bit+WD	SPI + 2xSC	52+16	8x8Bit	DMA+2HSHK+16Mbit Address
ST90R52Q1	None	224	None	PQFP80	3x16Bit+WD	SPI + 2xSC	54+16	8x5Bit	DMA+2HSHK+16Mbit Address

\* With Analog WDOG.

HSHK : Handshake - DMA : Direct Memory Access.

Note : Standard features include 5V+/-10% operating voltage, 0.5µ typical instruction time, 24MHz maximum Frequency and one Watchdog.

## ST90 FAMILY DEVELOPMENT TOOLS

Devices	Emulator		EPROM Programmer		Kit	Software Tools
	Complete	Dedicated Board	Single EPROM	Complete		
ST903X/4X	ST904X-EMU	ST904X-DBE	ST90E4X-EPB/220 ST90E4X-EPB/110	ST90E4X-GP/LCC68	ST9040-KIT/220 ST9040-KIT/110 ST9040-KIT/UK	ST9-SWC/PC ST9-XEC
ST905X	ST90R50-EMU/LCC ST90R50-EMU/QFP ST90R52-EMU	None	None	None	None	C" COMPILER



## ST92 MICROCONTROLLER TV FAMILY - HCMOS 8/16-BIT MCU

### A BROAD RANGE OF INTEGRATED PRODUCTS FOR THE CONSUMER SEGMENT

With ST92, SGS-THOMSON MICROELECTRONICS supports TV applications development with a complete range of integrated solutions that meet global market requirements from Low to High-End Chassis...

Built in functions, also suitable for Monitor, Satellite Receiver and VCR applications include On Screen Display, Data Slicer, Voltage Synthesis, and Infra Red Signal input handling.

The large memory space allows the inclusion of software for Close Caption, Teletext, and Scart/Peritel socket market management.

A standard video chassis developed by SGS-THOMSON supports evaluation and demonstration, and can form the basis of an original design with vastly reduced time to market.

### ST92 SERIES

Device *	Program Memory	RAM x 8 + REG	Package	Timers	I/O Ports	A/D Inputs	D/A Outputs
ST9291J7B1	48K ROM	640 + 224	PSDIP42	1x16 Bit + WD + SLT	31	3x6 Bit	8x8 Bit + 1x14 Bit
ST9291J6B1	32K ROM	640 + 224	PSDIP42	1x16 Bit + WD + SLT	31	3x6 Bit	8x8 Bit + 1x14 Bit
ST9291J4B1	24K ROM	384 + 224	PSDIP42	1x16 Bit + WD + SLT	31	3x6 Bit	8x8 Bit + 1x14 Bit
ST9291J2B1	16K ROM	384 + 224	PSDIP42	1x16 Bit + WD + SLT	31	3x6 Bit	8x8 Bit + 1x14 Bit
ST9291N7B1	48K ROM	640 + 224	PSDIP56	1x16 Bit + WD + SLT	42	3x6 Bit	8x8 Bit + 1x14 Bit
ST9291N6B1	32K ROM	640 + 224	PSDIP56	1x16 Bit + WD + SLT	42	3x6 Bit	8x8 Bit + 1x14 Bit
ST9291N5B1	24K ROM	640 + 224	PSDIP56	1x16 Bit + WD + SLT	42	3x6 Bit	8x8 Bit + 1x14 Bit
ST92E91J7D1	48K EPROM	640 + 224	CSDIP42-W	1x16 Bit + WD + SLT	31	3x6 Bit	8x8 Bit + 1x14 Bit
ST92E91J6D1	32K EPROM	640 + 224	CSDIP42-W	1x16 Bit + WD + SLT	31	3x6 Bit	8x8 Bit + 1x14 Bit
ST92E91N6D1	32K EPROM	640 + 224	CSDIP56-W	1x16 Bit + WD + SLT	42	3x6 Bit	8x8 Bit + 1x14 Bit
ST92E91N7D1	48K EPROM	640 + 224	CSDIP56-W	1x16 Bit + WD + SLT	42	3x6 Bit	8x8 Bit + 1x14 Bit
ST92T91J7B1	48K OTP	640 + 224	PSDIP42	1x16 Bit + WD + SLT	31	3x6 Bit	8x8 Bit + 1x14 Bit
ST92T91J6B1	32K OTP	640 + 224	PSDIP42	1x16 Bit + WD + SLT	31	3x6 Bit	8x8 Bit + 1x14 Bit
ST92T91N6B1	32K OTP	640 + 224	PSDIP56	1x16 Bit + WD + SLT	42	3x6 Bit	8x8 Bit + 1x14 Bit
ST92T91N7B1	48K OTP	640 + 224	PSDIP56	1x16 Bit + WD + SLT	42	3x6 Bit	8x8 Bit + 1x14 Bit
ST9293J7B1	48K ROM	768 + 224	PSDIP42	1x16 Bit + WD + SLT	31	4x6 Bit	None
ST9293J5B1	32K ROM	640 + 224	PSDIP42	1x16 Bit + WD + SLT	31	4x6 Bit	None
ST9293J9B1	63K ROM	768 + 224	PSDIP42	1x16 Bit + WD + SLT	31	4x6 Bit	None
ST92E93J7F1	48K EPROM	768 + 224	CSDIP42-W	1x16 Bit + WD + SLT	31	4x6 Bit	None
ST92E93J9F1	63K EPROM	768 + 224	CSDIP42-W	1x16 Bit + WD + SLT	31	4x6 Bit	None
ST92T93J7B1	48K OTP	768 + 224	PSDIP42	1x16 Bit + WD + SLT	31	4x6 Bit	None
ST92T93J9B1	63K OTP	768 + 224	PSDIP42	1x16 Bit + WD + SLT	31	4x6 Bit	None
ST9294J5B1	24K	640 + 224	PSDIP42	1x16 Bit + WD + SLT	31	3x6 Bit	8x8 Bit
ST9294J4B1	24K	384 + 224	PSDIP42	1x16 Bit + WD + SLT	31	3x6 Bit	8x8 Bit
ST9294J3B1	16K	640 + 224	PSDIP42	1x16 Bit + WD + SLT	31	3x6 Bit	8x8 Bit
ST9294J2B1	16K	384 + 224	PSDIP42	1x16 Bit + WD + SLT	31	3x6 Bit	8x8 Bit
ST92E94J5D1	24K EPROM	640 + 224	CSDIP42-W	1x16 Bit + WD + SLT	31	3x6 Bit	8x8 Bit
ST92T94J5D1	24K OTP	640 + 224	PSDIP42	1x16 Bit + WD + SLT	31	3x6 Bit	8x8 Bit
ST92E96N9D1▲	63K EPROM	2048 + 224	CSDIP56-W	1x16 Bit + WD + SLT	39	3x6 Bit	8x8 Bit

Note : \*Standard features include 5V+/-10% operating voltage, 0.5µs typical instruction time, 12 MHz maximum Frequency, OSD (On-Screen-Display), ADC functions and SPI.  
 ▲Under Development.

**ST92 FAMILY DEVELOPMENT TOOLS**

Devices	Starter Kit	Emulator	EPROM Programmer	GANG Programmer	Other
ST9291	None	ST9291-EMU ST9291-DBE	ST92E9X-EPB/110 ST93E9X-EPB/220	ST92E94-GP/DIP42 ST93E94-GP/DIP56	'C' Compiler ST9-SWC/PC
ST9293	None	ST9293-EMU ST9293-DBE		ST92E93-GP/DIP42	
ST9294	None	ST9294-EMU ST9294-DBE		ST92E94-GP/DIP42	
ST9296▲	None	ST9296-EMU	None		

▲ Product under development

## ST10 FAMILY HIGH PERFORMANCE CMOS 16-BIT MCU

The ST10 family of 16-bit microcontrollers covers the evolution into high performance applications in computer, telecom industrial and automotive markets. Driven by the non-volatile FLASH memory technology developed by SGS-Thomson the new ST10 family offers a 16-bit core, FLASH/ROM and RAM capabilities and advanced peripheral functions.

This high-end microcontroller includes independent intelligent Peripherals, designed such that CPU dependence is efficiently reduced and the flexibility is increased.

## ST10 SERIES

Devices	Program Memory	RAM x 8	Package	Timers	Serial Interface	I/O Ports	A/D Inputs	Other Features
ST10F166	32K Flash	1K	PQFP100	5 x 16 Bit	2USARTs	76	10x10 Bit	PEC + CAPCOM
ST10F167 (**)	128K Flash	4K	PQFP144	5 x 16 Bit	1USART+SSC	110	16x10 Bit	PEC + CAPCOM + PWM
ST10R165BT6		2K	TQFP100/PQFP100	5 x 16 Bit	1USART+SSC	77		PEC

Note : Standard features Include. a 4.5 to 5.5V operating voltage, 12V programming voltage, 0.1µs instruction time, 20 MHz frequency and Watchdog.

(\*\*): Please consult marketing.

## ST10 FAMILY DEVELOPMENT TOOLS

Devices	DEVELOPMENT TOOLS		
	Emulator	EPROM Programmer	Other
ST10F166 ST10R166 ST10F167 ST10R165	KONTRON/HITEX K&S/LAUTERBACH	ST10F166-EPB ST10F167-EPB	COMPLETE S/W & H/W: BSO/TASKING (SW) + KEIL (SW) + ERTEC + INFORM

## TRANSPUTER FAMILY

### Complete range of 16/32 bit microprocessors and peripherals.

- Unique multiprocessing capability.
- Development systems for popular hosts such as IBM PC<sup>®</sup>, and SUN<sup>®</sup>.
- Compilers for C, and C++. Includes support for parallel processing.
- occam<sup>®</sup> compiler supports optimized parallel processing on transputer.
- Range of software development tools including debuggers and simulators.
- Extensive 3rd party support - over 250 products listed in Transputer White Pages.

## PROCESSORS

Family	Part Number	Speed (MHz)	SRAM (Bytes)	Timers	Ext Mem Add (Bytes)	Serial Ports	Link Speed (Bit/s)	Package Options
T2# 16 bit CPU	IMST225 – G25S IMST225 – J25S IMST225 – F25S	25	4k	16 bit	64k	4 OS-Link	20M	68 PGA 68 PLCC 100CQFP
T4 32 bit CPU	IMST400 – G20S IMST400 – J20S IMST400 – X20I IMST400 – T20S	20	2k	32 bit	4G	2 OS-Link	20M	84 PGA 84 PLCC 100 PQFP 100 TQFP
	IMST425 – G25S IMST425 – J25S IMST425 – X25S	25	4k	32 bit	4G	4 Link	20M	84PGA 84 PLCC 100 PQFP
T8# 32 bit CPU + 64 bit FPU	IMST805 – G25S IMST805 – F25S	25	4k	32 bit	4G	4 OS-Link	20M	84 PGA 100CQFP
T9000 32 bit CPU+64 bit FPU	IMST9000 – F20S	20	16k	32 bit	4G	4 DS-Link	100M	208 CLCC

# Extended temperature part available. Consult your local sales representative for details.

## PERIPHERALS

Part Number	Speed MBit/s	Relevant Processor	Description	Package
IMSC004–G20S	10/20	TXXX	Programmable Link Switch	84 PGA
IMSC011–P20S# IMSC011–E20S IMSC011–W20S	10/20	TXXX	Link to 8bit parallel I/O interface. Mode 1: 8bit parallel I/O with full handshake Mode 2: Tristate bidirectional bus interface.	28 DIL 28 SOJ 28 LCCC
IMSC012-P20S	10/20	TXXX	C011 Mode 2 operation only. Smaller package	24 DIL
STC101-F10S	100	T9000	Parallel DS-Link Adaptor	100 CQFP
STC104-F10S	100	T9000	Asynchronous Packet Switch	208 pin CLCC

# Extended temperature part available. Consult your local sales representative for details.

## ST20 FAMILY

Part Number	Description	Speed (MHz)	SRAM (Bytes)	Serial Links	Package
ST20450X40S	32-bit Microprocessor	40	16k	4	208 PQFP
ST20-GP1	Application Specific 32 bit GPS Microprocessor	16/33	4k	1	100 PQFP
ST20-TP1	Programmable Transport IC for DSS (Digital Satellite Systems) Applications	40	8k	4	PQFP208
ST20-TP2	Programmable Transport IC for DVB (Digital Video Broadcast) Applications	40	8k	4	PQFP208

## DEVELOPMENT TOOLS AND SYSTEMS

## MOTHERBOARDS

Part Number	Transputer	Bus	Interface Method	Memory	Number of Slots	Format
IMSB008-1	TXXX	PC XT/AT	Link Adaptor	–	10 TRAM	Long PC board
IMSB014-1	TXXX	VMEbus*	Link Adaptor	–	8 TRAM	6U VME
IMSB108-1	T9000	PC AT	DS-Link Adaptor	–	2 x size 4 HTRAM	Long PC board
IMSB101-1	T9000	VMEbus	External DS-Link	–	4 x size 2 HTRAM	6U VME
IMSB103-1	T9000	VMEbus	Ethernet and OS/DS-Link	8Mbyte DRAM	–	6U VME
IMSB104-1	T9000	VMEbus	Via front panel or P2 connector	–	4 x size 2 HTRAM	6U VME

\* Slave only, no bus master capability

## TRANSPUTER MODULES (TRAMs and HTRAMs)

Part Number	Memory Size (MBytes)	Processor	DRAM/cycles	TRAM/HTRAM Size	Subsystem
IMSB427-16	8	T805-25	8M/160ns	Size 2 TRAM	Yes
IMSB433-16	16	T805-25	16M/160ns	Size 4 TRAM	Yes
IMSB926-XX**	4	T9000-XX**	4M/2-5	Size 2 HTRAM	No
IMSB927-XX**	8	T9000-XX**	8M/2-5	Size 2 HTRAM	No
IMSB927-XX**	16	T9000-XX**	16M/2-5	Size 2 HTRAM	No
IMSB452	4	ST20450	4M/100ns	Size 2 TRAM	Yes

\*\* Refers to processor speed variants. Consult your local sales representative for details.

**COMPILERS & TOOLSETS**

Part Number	Target Processor	Description	Language	Host Computer
IMSD4414 IMSD7414	TXXX/ ST20450	C Toolset Including "INQUEST" Debugger	ANSI C	SUN 4 PC 386+
IMSD4405 IMSD7405	TXXX/ ST20450	occam 2.1 Toolset Including "INQUEST" Debugger	occam 2.1	SUN 4 PC 386+
IMSD4417 IMSD7417	TXXX/ST20	C++ Pre-processor for ANSI C Toolset	C++	SUN 4 PC 386+
IMSD4394 IMSD7394	T9000	C toolset	ANSI C	SUN 4 PC 386+
IMSD4395 IMSD7395	T9000	occam 2 Toolset	occam	SUN 4 PC 386+
IMSD4317 IMSD7317	T9000	C++ Pre-processor for ANSI C Toolset	C++	SUN 4 PC 386+
IMSD4390 IMSD7390	T9000	INQUEST Debugger	C/occam	SUN 4 PC 386+
ST20-SWC++/SUN ST20-SWC++/PC	ST20	C++ Pre-processor available, ANSI C Compiler, Debugger, Toolset for ST20 Product range	ANSI C	SUN 4 PC 386+

**NETWORK INTERFACE SOFTWARE**

Part Number	Target Processor	Description	Host Computer
IMSS4397 IMSS7397	T9000	Network Interface Software for SUN and PC	SUN 4 PC 386+

**SPECIFIC DEMO BOARD**

Sales Type	Comments
ST20450-SAB ST20-PPI ST20-PPS IMSB300-1	VME Format Development Board including PPI PC Parallel Port Interface ST20-PPI + ST20-SWC/PC combined package Ethernet TCP/IP gateway for ST20 boards

1. Each Demo Board exists in /220 (Europe), /110 (U.S.), /UK (U.K.) voltages and plugs

## ACCESSORIES AND CABLES

Part Number	Relevant Processor	Description
IMSCA90-10	T9000	10 x Socket
IMSCA91-3	T9000	3 x 0.5m Cable
IMSCA92-3	T9000	3 x 2m Cable

## PC MULTIMEDIA

## MULTIMEDIA PALETTE-DACS

Part Number	Description	Package
STG1732X-13	32 bit Multimedia Palette-DAC	100 PQFP
STG1764X-13	64 bit Multimedia Palette-DAC	128 PQFP

## MULTIMEDIA ACCELERATOR

Part Number	Description	Package
STG2000X	Multimedia Accelerator	208 PQFP