Megawin New 1T 8051 5X / 6X series

Part No.	MG82FG5A	MG82FG5B	MG82FG5C	MG82FG5D	MG82G5E	MG82F6D17
Flash	64/32KB	32/16/8KB	64/48/32KB	16KB	32KB	16KB
SRAM	5.25KB	2KB	4KB	1KB	2KB	1KB
Op. Voltage	2.0~5.5V	1.8~5.5V	1.8~5.5V	1.8~5.5V	1.8~5.5V	1.8~5.5V
IHRCO	11.059M	12M/11.059M	12M/11.059M	12M/11.059M	12M/11.059M	12M/11.059M
ILRCO	32KHz	32KHz	32KHz	32KHz	32KHz	32KHz
XTAL	Y	Y	Y	Y	Y	N
CPU CLK (Max.)	36MHz	25Mhz	32MHz	32MHz	32MHz	36MHz
SYS CLK (Max.)	36MHz	25MHz	32MHz	50MHz	50MHz	50MHz
ADC Type	12bit, 250K	10bit, 200K	10bit x 500K	10bit x 1M	10bit x 1M	12bit x 800K
ADC CH	x8	x8	x16	x8	x8	x8
ACOMP	N	N	x3	x1	x2	N
Package Pin	64/48	32/28/20/16	64/48/32	20/16	48	20/16
GPIO	55	29	59	25/24	44/45	17
IO Drive Sel.	N	N	Y	Y	Y	Y
Timer	T0/T1/T2	T0/T1/T2	T0/T1/T2/T3/T4	T0/T1/T2	T0/T1/T2/T3	T0/T1/T2/T3
PCA (PWM)	PWMx6	PWMx8	PWMx6 x2	PWMx6	PWMx8	PWMx8
PLL source	96Mhz	96/100MHz	96/100MHz	96/100MHz	96/100MHz	96/144MHz
Dead Time, Central Aligned Break	N	Y	Y	N	Y	Y
OBM (Output Break Modulator)	N	N	N	N	Y	N
MCD (Missing Clock Detection)	N	Y	Y	Y	Y	N
UART	x2	x2	x4	x1	x2	x2
UR ext. Func.	S1BRG	S1-LIN/SCI S1BRG	S1~S3-LIN/SCI S1/S2/S3BRG	N	S0-LIN S0/S1BRG	S0-BRG/LIN S1BRG
SPI	x1	x1	x1	x1	x1	x1
SPI ext. Func.	N	N	QPI	N	N	N
TWI (IIC)	x1	x2	x2	x1	x1	x1
KBI	Y	Y	Y	Y	Y	Y
PAOE	Y	Y	Y	Y	Y	Y
WDT	Y	Y	Y	Y	Y	Y
RTC	Y	Y	Y	Y	Y	Y
Int.Vref	N	2.4V	N	1.4V	1.4V	1.4V
OCD	Y	Y	Y	Y	Y	Y
CRC16	N	N	N	N	Y	Y
DMA	N	N	N	N	N	Y

6D17=004

MG82F6D17

6D17 > 003 = 003 + = 003 Plus = 004

New Special Function

16KB Flash / 1KB RAM / SSOP20 TSSOP20 QFN20

16bit Timer x 4

UART / SPI / I2C

ADC 12bit x 8ch 800Ksps

ADC Window detect & auto channel scan

PWM 8ch / 144Mhz

Central alignment PWM

CRC16

DMA for M2P/P2M/P2P

8051 16KB 6D17 vs Competitors - 1

Feature		STM8S003F3	N76E003	MG82FG5D16	MG82F6D17
Memory	Flash	8KB	18KB	16KB	16KB
	SRAM	1KB	1KB	1KB	1KB
	Data Memory	EE 128B	IAP	IAP	IAP
Temp.		-40 ~ +85	-40 ~ +105	-40 ~ +105	-40 ~ +105
Power	VDD Range	2.95~ 5.5V	2.4V ~ 5.5V	1.8 ~ 5.5	1.8 ~ 5.5
	PD Crrent @25°C	6.0uA @5V 4.5uA @3.3V	6.0uA	2.5uA	2.5uA
BOD		No	4.4/3.7/2.7/2.2V	4.2/3.7/2.4/2.0V	4.2/3.7/2.4/2.0V
I/O	Max. Package	32 pin	20 pin	28 pin	20 pin
	GPIO @ 20pin	16	x18	17	17
	I/O Speed	Fast/Slow	Fast/Slow	Slow	Fast/Slow
	I/O Driving	H(x12) + L(x4)	High	High/Low Drive	High/Low Drive
Clock	ECKI	Yes	Yes	Yes	Yes
	IHRCO	16MHz	16MHz	IHRCO 12MHz/11.059MHz	IHRCO 12MHz/11.059MHz
		±5% @ all temp or @25°	±1% @ -10~+70° ±2% @ -40~+105°	±1% @ 25° ±2% @ -40~+105°	±1% @ 25° ±2% @ -40~+105°
	ILRCO	128K	10KHz	32KHz	32KHz
	XTAL	0~16MHz	No	0~24MHz	No (no XTAL)
	MCD	Yes	No	Yes	No (no XTAL)
	CPU	up to 16MHz	up to 16MHz	up to 32MHz (PLL)	up to 36MHz (PLL)
	PWM	up to 16MHz	up to 16MHz	up to 96MHz	up to 144MHz

8051 16KB 6D17 vs Competitors - 2

Feature		STM8S003F3	N76E003	MG82FG5D16	MG82F6D17
Ext. INT		4 ch	2ch	3 ch	3 ch
KBI		No	8ch	8ch	8ch
WDT		60us ~ 1S	6.4ms~1.6S	0.25ms ~ 2S	0.25ms ~ 2S
WKP Timer (RTC)		15.6us ~ 30.7S	100us ~ 51.2S	30us ~ 64S	30us ~ 64S
Timer		TM1, TM2, TM4(8)	T0/T1/T2/T3	T0/T1/T2	T0/T1/T2/T3
PWM	Total Channel	(16-bit x4ch on TM1) (16-bit x3ch on TM2)	(16-bit x 6ch or 16-bit x 3ch) on PWM Timer	(8-bit x 6ch **or** 16-bit x 3ch) on PCA 8-bit x3ch on T0/T1/T2	(8-bit x 8ch **or** 16-bit x 4ch) on PCA 8-bit x4ch on T0/T1/T2/T3
		COMPx3 on TM1	COMPx3 enbale by group	COMP enable by pair	COMP enable by pair
	PWM Dead-Time/ CentralAligned/ Break	Yes on TM1	Yes on PWM Timer	No	Yes on PCA
		COMPx3 on TM1	COMPx3 on PWM Timer		COMPx3 on PCA
	PWM Clock	upt to 16MHz	up to 16MHz	up to 96MHz	upt to 96MHz/ (144)
SPI M/S		up to 8MHz	up to 8MHz	M:12MHz / S:6MHz	M:24MHz / S:12MHz
I2C M/S		400KHz	400KHz	M:1MHz / S:400KHz	M:1MHz / S:400KHz
Pri. UR (UART0)	STD B.R.	up to 115200 x8	up to 38400 @16MHz up to 115200 @16.6M	up to 115200 x32	up to 115200 x32
	Max. B.R.	1.0M	1.0M	6.0M	6.0M
	BRG	Self-BRG	using T1/T3	using T1/T2	Self-S0BRG or using T1/T2
	Alt. Function	RS-485/SPI-M/LIN/ IrDA/SCI	RS-485	RS-485/SPI-M	RS-485/SPI-M/LIN
2nd UR (UART1)	STD B.R.	X	38400 @16MHz 115200 @16.6M	X	up to 115200 x16
	Max. B.R.	X	1.0M	X	3.0M
	BRG	X	using T3	X	Self-S1BRG
	Alt. Function	X	RS-485	X	SPI-M

8051 16KB 6D17 vs Competitors - 3

Feature		STM8S003F3	N76E003	MG82FG5D16	MG82F6D17
ADC	Resolution	10-bit	12-bit	10-bit	12-bit
	Speed	430K sps	500K sps	1M sps	800K sps
	Channel	5 ch	8 ch	8 ch @ 28-pin 5 ch @ 20-pin	8 ch
	Channel Scan	Yes	No	No	Yes
	Result Compare	Window Detect	One threshold	No	Window Detect
	FIFO	10 words	No	No	No, but support DMA
	IVR (on-chip Voltage Reference)	No	1.22V	1.4V	1.4V
			-4.1%~6.5% @25° -6.5%~9.0% @10°~85°	-6.7%~6.9% @-40°~85°	??? @25° -6.7%~6.9% @-40°~85°
CRC16		No	No	No	Yes
DMA		No	No	No	1-ch for M2P, P2M, P2P
					XRAM, UR0, UR1, SPI, I2C, ADC, CRC16
ACMP		No	No	Yes, x1	No