

# Comparison of XGecu T56, T48 and TL866II Plus

## T48/T56/TL866II hardware performance

	T48(TL866-3G) Support: 28000+	T56 Support: 33000+	TL866II Plus Support: 17000+
Controller	32Bit 120MHZ , 4-layer PCB Design	32bit 200MHZ+FPGA 4-layer PCB design	16bits 32MHZ 2-layer PCB
USB Speed	USB2.0 HS 480MHZ	USB2.0 HS 480MHZ	USB1.1 FS 12MHZ
IO and Socket	40P industrial high-quality Socket 16 channel ISP Total: 56-channel dedicated IO 56-channel high-speed high-voltage isolation	48P industrial high-quality Socket 16- channel full-driver ISP Total: 56-channel full-driver IO 56-channel high-speed high-voltage isolation	Ordinary 40P Socket Non-dedicated ISP port  40-channel resistance-diode isolation
P-NAND	Maximum capacity: 256Gb Maximum Speed: 6MBytes/S Package: TSOP48/BGA63 Not Support one-NAND	Maximum capacity: 256Gb Maximum Speed: 10MBytes/S Package: TSOP48/BGA63 Support one-NAND	Maximum capacity: 8Gb Maximum Speed: 0.8MBytes/S Package: TSOP48 Not Support one-NAND and 16b NAND
S-NAND	Full range supported Maximum Speed: 3.2MBytes/S Maximum Clock: 30MHZ Support SPI mode	Full range supported Maximum Speed: 10MBytes/S Maximum Clock: 50MHZ Support SPI mode and X4 QUAD mode	Not Supported
EMMC	Package: BGA153/162/169/100/221 Support 4b/1b mode Maximum Speed: 17MB/s Maximum capacity: 256GB BGA Adapter 5 in 1(Cost-effective) ISP: 4b/1b Mode	Package: BGA153/162/169/100/221 Support 8b/4b/1b mode Maximum Speed: 40MB/s Maximum capacity: 256GB BGA Adapter: alone ISP: 4b/1b Mode	Not Supported
VPP Voltage	9.0V-25V 64 levels adjustable	9V-25V 64 levels adjustable	9-18V 32 levels adjustable
VCC Voltage	1.8V-6.5V 64 levels adjustable	1.2V-6.5V 64 levels adjustable	1.8V-6.5V 32 levels adjustable
IO Voltage	1.8V-3.6V 16 levels adjustable	1.2V-3.6V Continuously adjustable	Not adjustable (3.3V)
P Nor Flash	TSOP48/BGA48/SOP44/PLCC44 (TSOP56/BGA64/DIP42 will be added)	TSOP48/TSOP56/BGA48/BGA63/BGA64 /SOP44/PLCC44/DIP42/SSOP56	TSOP48/SOP44
SPI Nor Flash	Maximum capacity: all Maximum Speed: 3.2MBytes/S Maximum Clock: 30MHZ	Maximum capacity: all Maximum Speed: 5MBytes/S Maximum Clock: 50MHZ	Maximum capacity: <512Mb(64MB) Maximum Speed: 0.8MBytes/S Maximum Clock: 8MHZ
SIZE	10x6.5x2.8cm( almost same as TL866II )	12.9x8.5x2.9cm	10x6x2.5cm

## T48/T56/T866II Test speed comparison table(Program+Verify)

	T48(TL866-3G)	T56	TL866II Plus	NOTE:
W25Q80 (1MB Full 100% data)	3.5s+0.3s (30MHZ)	3.5s+0.2s (50MHZ)	5.0s+1.6s	T48 is 5 times faster than TL866II
SPI NOR FLASH GD25Q128 (16MB Full 100% data)	30s+5.4s (30MHZ)	30s+3.5s (50MHZ)	55.0s+26.0s	The 48/T56 has the same time for programming , because it has almost reached the limit speed that the SPI Nor Flash chip can be programmed. T48 is 5 times faster than TL866II
SPI NAND MX35LF1GE4AB (1Gb about 60% data)	46s+27s (x1 MODE)	16s+19.5s (x4 MODE)	Not Supported	Real data of a device tested
P_NAND (1Gb about 80% data) MT29F1G08ABAEA	27s+17s	13s+12s	208s+130s	Real data of a device tested T48 is 8 times faster than TL866II
EMMC 4G MTFC4GL (50% data)	Read 207s/Verify 125s (40MHZ)	Read 165s/Verify 125s (40MHZ)	Not Supported	Note: When the data is 100% full, the read and write speed of T48 is almost the same as that of T56, and the ISP speed is the same
P_NOR FLASH EN29LV320 TSOP48	24s+1.9s	22s+0.9s	155s+28s	T48 is 8 times faster than TL866II
W27C512	30s+0.3s	12s+0.1s	30s+1.0s	Little different
W29C020	8.3s+0.1s	7.4s+0.1s	9.5s+0.2s	Little different