Sipeed Tang Primer 20K

Datasheet v1.0

Characteristic:

- FPGA: GW2A-18 with 20,736 LUT4.
- 41,472bits SSRAM & 1Gbit DDR3 SDRAM.
- JTAG & UART SH1.0 8P Connector.
- 1.14-inch SPI LCD Connector.
- 32Mbit SPI NOR Flash.
- Additional microSD Card Support.
- Compatible With DDR3 SODIMM Socket.

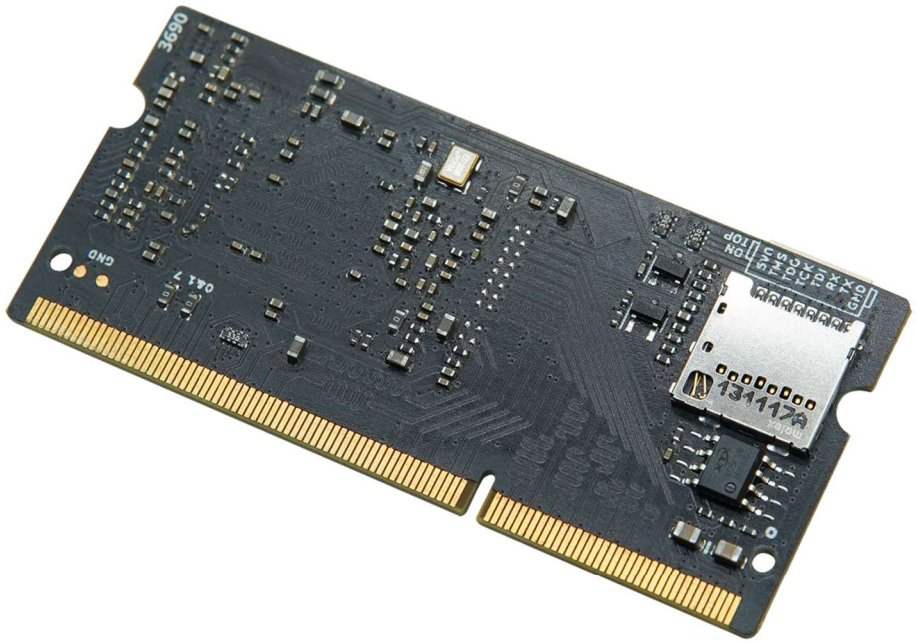
Update record of this document	
V1.0	July 12, 2022: Original document release.

Hardware overview	
LUT4	20,736
Flip-Flop (FF)	15,552
Shadow SRAM SSRAM (bits)	41,472
Block SRAM BSRAM	828K
BSRAM quantity BSRAM	46
SDRAM (bits)	1024M
SPI NOR Flash (bits)	32M
High performance DSP	Support 9x9,18x18,36x36bits multiplier and 54bits accumulator
18 x 18 Multiplier	48
SD Card	microSD x1, up to 1TB
PLLs	4
Display interface	SPI interface 8P FPC connector
Debug interface	JTAG & UART fanned out to SH1.0 8P Connector/Golden Finger for GW2A-18
IO	• Support 4mA, 8mA, 16mA, 24mA and other driving capabilities • Independent bus keeper, pull-up / pull-down resistor and open drain output options are provided for each I/O
Core Voltage	1.0V
Golden Fingers	204P DDR3 SODIMM
User IOs	103 (Include 8 1.5V Switch Input-Only IOs & 4 JTAG Ios & 1 Reset IO)

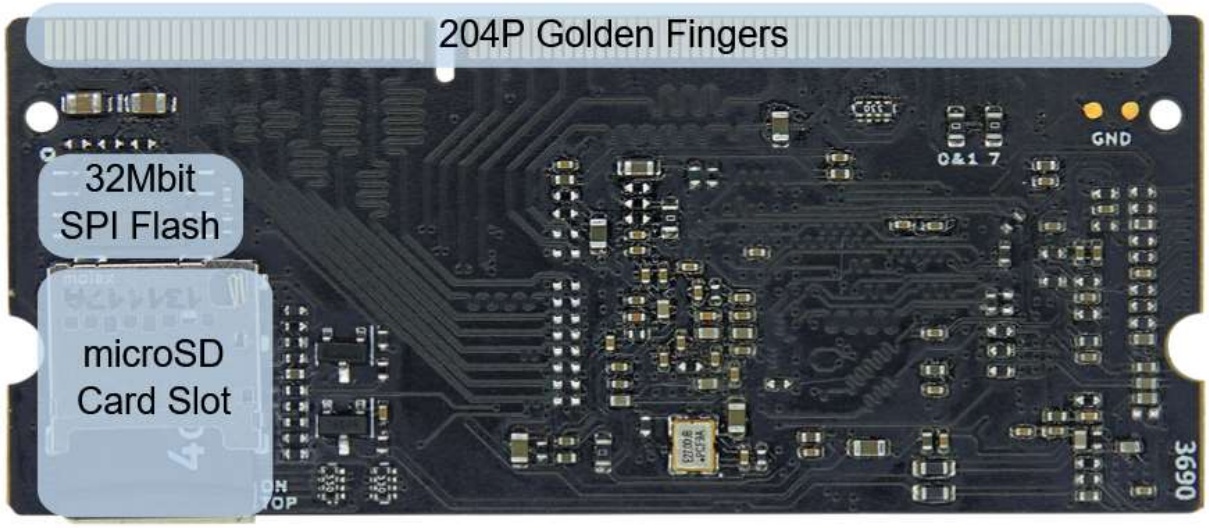
Software overview	
IDE	Support GOWIN IDE(Version>1.9.7) ；Support GOWIN Synthesis
License	https://wiki.sipeed.com/soft/Tang/zh/Tang-Nano-Doc/get_started/install-the-ide.html
IDE	http://www.gowinsemi.com.cn/faq.aspx
GOAI brief introduction	http://www.gowinsemi.com.cn/down.aspx?TypeId=666&Id=757
GOAI Official project	https://github.com/gowinsemi/GoAI
Sipeed Reference example	https://github.com/sipeed

Working conditions	
Power supply demand	Via SH1.0 Connector/Golden Finger：5V±10% 0.5A
Temperature rise	<30K
Operating ambient temperature range	-10℃ ~ 65℃

Appearance viewing



Functional annotation

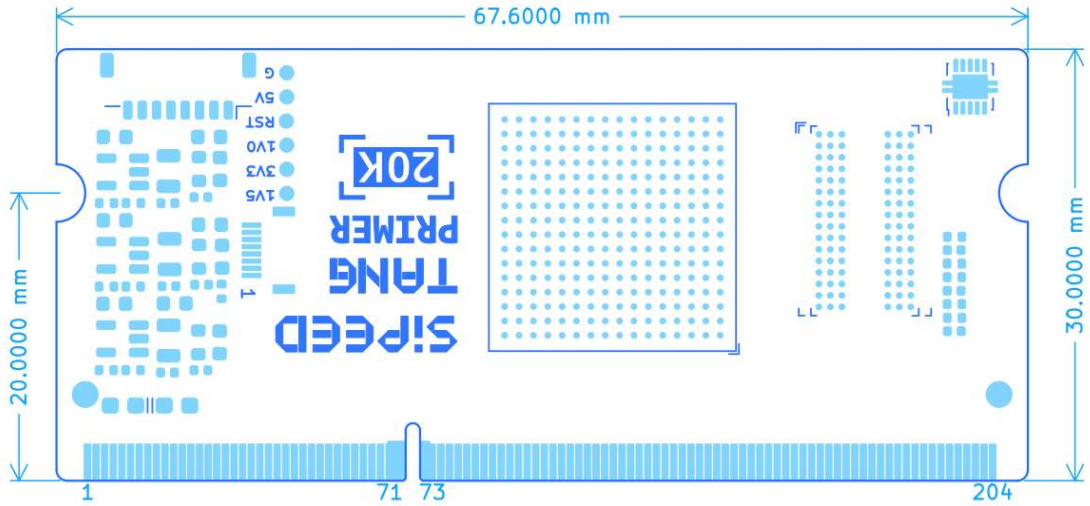


Mechanical information	
Length	67.60 mm
Width	30.00mm
Thickness	Please check the 3D drawing

JEDEC has standardized detailed mechanical information for the 204 Pin DIMM family. This information can be accessed on the worldwide web as follows:

1. Go to http://www.jedec.org.
2. Search "MO-268" and download.

The JEDEC standard MO-268 is for reference only because this module is not a SDRAM module; Please refer to the 3D drawing of this module via our download station for more details.



Matters needing attention	
ESD protection	Please pay attention to avoid static electricity hitting PCBA. Please release the static electricity from the handle before contacting PCBA
Tolerance voltage	The working voltage of each GPIO has been marked in the schematic. Please do not let the actual working voltage of GPIO exceed the rated value, otherwise it will cause permanent damage to PCBA
FPC connector	When connecting FPC flexible cable, please ensure that the cable is completely inserted into the cable without offset ;
Plugging	Please disconnect the power completely before plugging in and out the camera
Avoid short circuit	Please avoid any liquid or metal touching the pads of components on PCBA during power on, otherwise it will cause short circuit and burn PCBA

Resources	
Official website	www.sipeed.com
Github	https://github.com/Sipeed
BBS	http://bbs.sipeed.com
Wiki	wiki.sipeed.com
Sipeed Model platform	https://maixhub.com/
SDK /HDK Relevant information	https://dl.sipeed.com/
E-mail (Technical support & Business cooperation)	support@sipeed.com