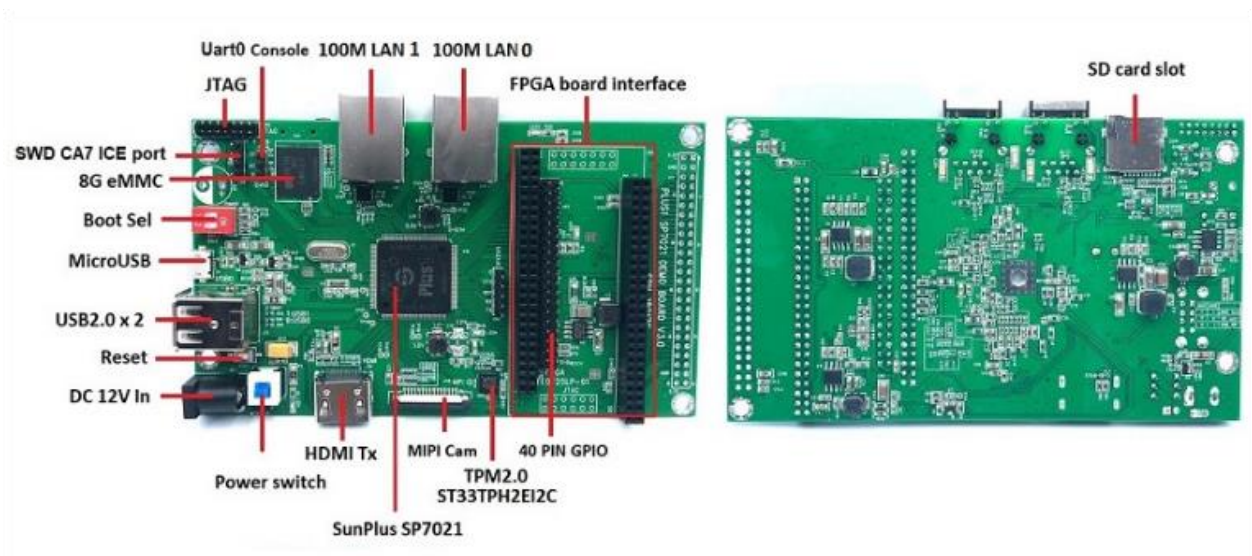# Banana Pi BPI-F2S

Hardware interface

note : 40 PIN GPIO compitable Raspberry Pi

Hardware spec

- SoC – Sunplus SP7021 "Plus1" with a quad-core Cortex-A7 processor @ 1.0 GHz, one Arm A926 microprocessor, an 8051 core to handle I/Os, and 128MB or 512MB DDR3 DRAM.
- Storage – 8GB eMMC flash, microSD card slot
- Video Output – HDMI 1.4 output
- Camera I/F – MIPI CSI connector
- Connectivity – 2x 10/100M Ethernet
- USB – 2x USB 2.0 host ports, 1x micro USB port
- Expansion
    40-pin GPIO header compatible with Raspberry Pi header
    2x 50-pin FPGA interface for Trenz Electronic TE0725LP-01-100-2D Artix 7 FPGA board
    Unpopulated, undocumented 50-pin header that's appears to be routed to one of the headers for the optional FPGA board

- Debugging – 3-pin header for UART console, 10-pin JTAG header, SWD ICE port
- Security – TPM 2.0 via ST33TPH2EI2C secure element
- Misc – Power switch, reset button, boot selection dip switch
- Power Supply – 12VDC via power barrel jack
- Dimensions –135x80mm
- Temperature Range – -40C ~ +85°C

SOC education and training practice suite

SunPlus SP7021 development suite is a set of development platform with high integration of single chip based on sunplus 7021 SOC.With high performance, low Characteristics of power consumption;Embedded Linux Embed system, suitable for voice image processing, communication, portable industrial control equipment and other applications.With high performance processor, especially suitable for AI artificial intelligence, machine vision and other applications requiring strong computing power;Expandable FPGA module, can Layout, small board area, easy to field test application

Kit include

- 1. BPI-F2S sunplus board
- 2. FPGA baord: Xilinx Artix-7 XC7A100T,32 MByte QSPI Flash memory,power by single 3.3v
- 3. teaching sheet board : 4 digit 7 segment digital tube teaching,DIP8 socket for SPI flash IP authentication,8 LED lights are used for teaching
- 4. debug tooling
- 5. 12v/2A adapter

FPGA kit documents

online development doc: https://sunplus-tibbo.atlassian.net/wiki/spaces/doc/pages/470777857/SP7021+Plus+Xilinx+FPGA+SOC+Platform+UserGuide

Sunplus official website for BPI-F2S FPGA development Kit:http://www.cqplus1.com/zlxz

function demo : https://www.youtube.com/watch?v=602gQo_Qcrs

Xilinx Artix-7 FPGA extend board

FPGA Module with Xilinx Artix-7 100T (Variant 2D), 2 x 50 Pin, 1.8V only supply

Now with the Trenz Electronic TE0725LP-01-100-2D is a low cost small-sized FPGA module integrating a Xilinx Artix-7 (15T-100T) and 32 MByte Flash memory for configuration and operation. The 2 x 50 pin headers with a 2.54 mm standard pitch are perfect for breadboard or low cost dual layer PCB.

Trenz HyperBus enabled reference designs are typically bundled with a FREE evaluation edition of the commercially proven, low-cost, low-circuit area, high performance, HyperBus Memory Controller (HBMC) IP supplied by Synaptic Laboratories Ltd. Synaptic Labs HBMC IP is commercially proven in both Intel and Xilinx projects, and was selected by Intel. This FREE HBMC IP evaluation license never expires, and no customer registration or NIC ID is required. You can check for and obtain the latest version of the FREE evaluation HBMC IP from S/Labs website for Xilinx and Intel.

Key Features:

- Xilinx Artix-7 XC7A100T-2CSG324C/XC7A100T-2CSG324I
- Commercial temperature grade (industrial on request)
- 32 MByte Flash memory
- 2 x 50 pin headers with 2.54 mm pitch, ideal for breadboard use
- 1.8 V single supply with on board voltage regulators
- 95 I/O's (42 + 42 + 3 + 8)
- 25 MHz system clock (100 MHz can be customized on request)
- I2C EEPROM
- 7.3 x 3.5 cm form factor
- JTAG/UART connector
- One user LED
- optional HyperRAM (8 bis 32 MByte) or HyperFlash
- HyperRAM from Cypress :http://www.cypress.com/products/hyperram-memory
- HyperFlash from Cypress http://www.cypress.com/products/hyperflash-nor-flash-memory