



# World's First High-Performance RISC-V SBC Integrated with 3D GPU for mass Production——VisionFive 2

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StarFive Technology



# StarFive: the Leader of RISC-V Technology and Ecosystem in China

1

## Well Funded

### ✓ 1 Billion+

More than one billion yuan raised from well-known institutions in total

2

## First Commercial RISC-V Based Products in China

### ✓ Dubhe

Full self-developed and high-performance RISC-V processor core IP

### ✓ JH7110

High-performance RISC-V multimedia processor for mass production

### ✓ VisionFive 2

First high-performance yet affordable RISC-V SBC for mass production

3

## Strong Team

### ✓ 20 Years+

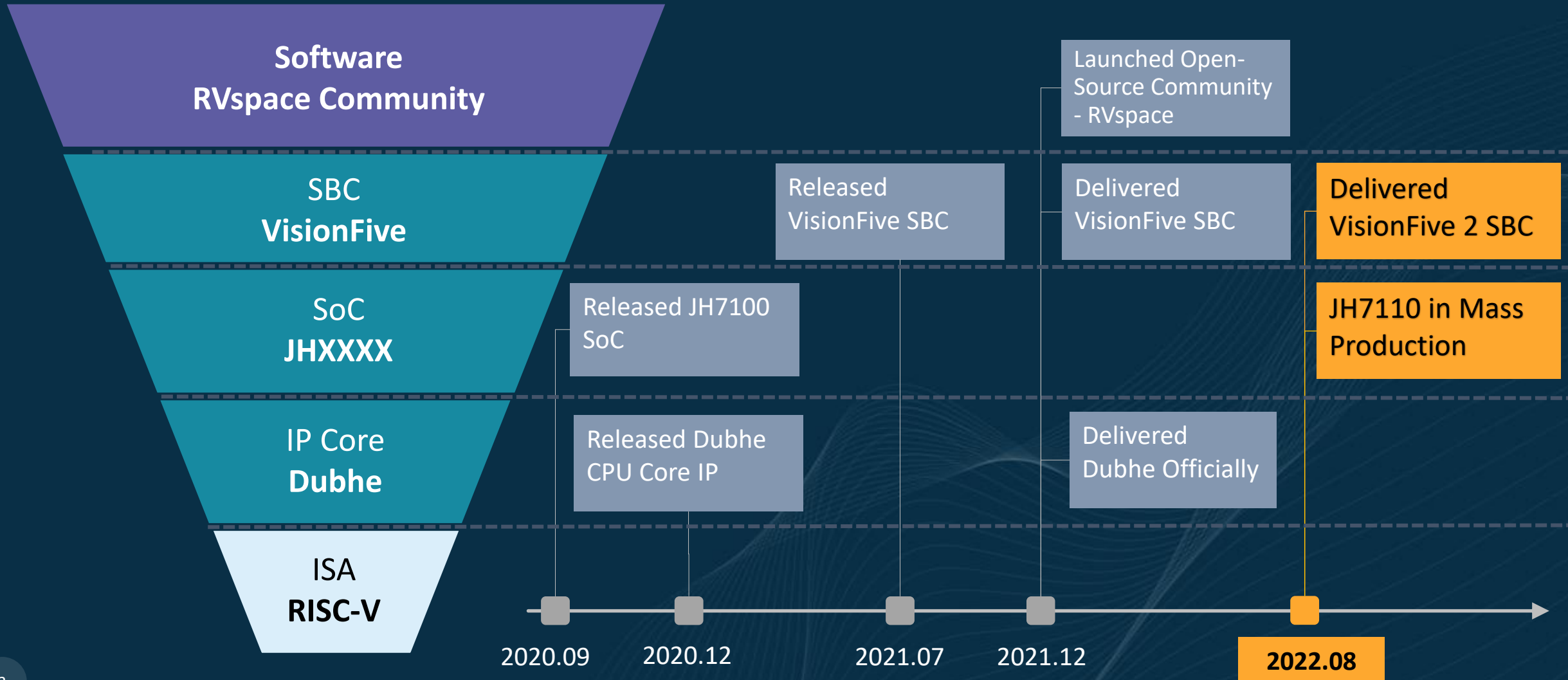
All core team members have more than 20 years of experience in well-known chip companies

### ✓ 300 People+

Strong end-to-end capability of system architecture/chip/software



# Provide Overall Solutions Based on RISC-V





# JH7110 SoC

## Processor

High-Performance Quad-core  
RISC-V CPU Core IP—U74,  
2MB L2 Cache, Work  
Frequency up to 1.5 GHz

## Image & Video Processing

Innovative ISP, IMG 3D GPU,  
H264/265 Codec

## Process technology

Mature TSMC 28nm HPC+



## System Bus

2,800 Mbps 32-bit  
LPDDR4/LPDDR3/DDR4/DDR3

## Operating System

Mainstream Linux  
distributions,  
OpenHarmony

## Peripheral Interfaces

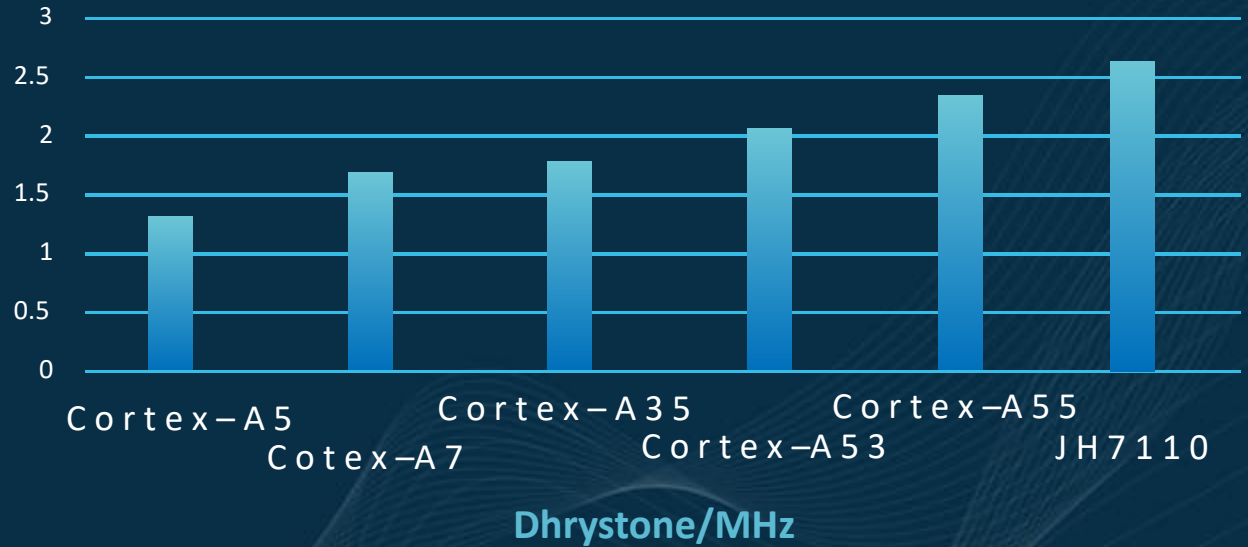
PCIE, HDMI, MIPI, USB3.0/2.0  
Host/Device, Ethernet 1Gbps



# JH7110 – High Performance

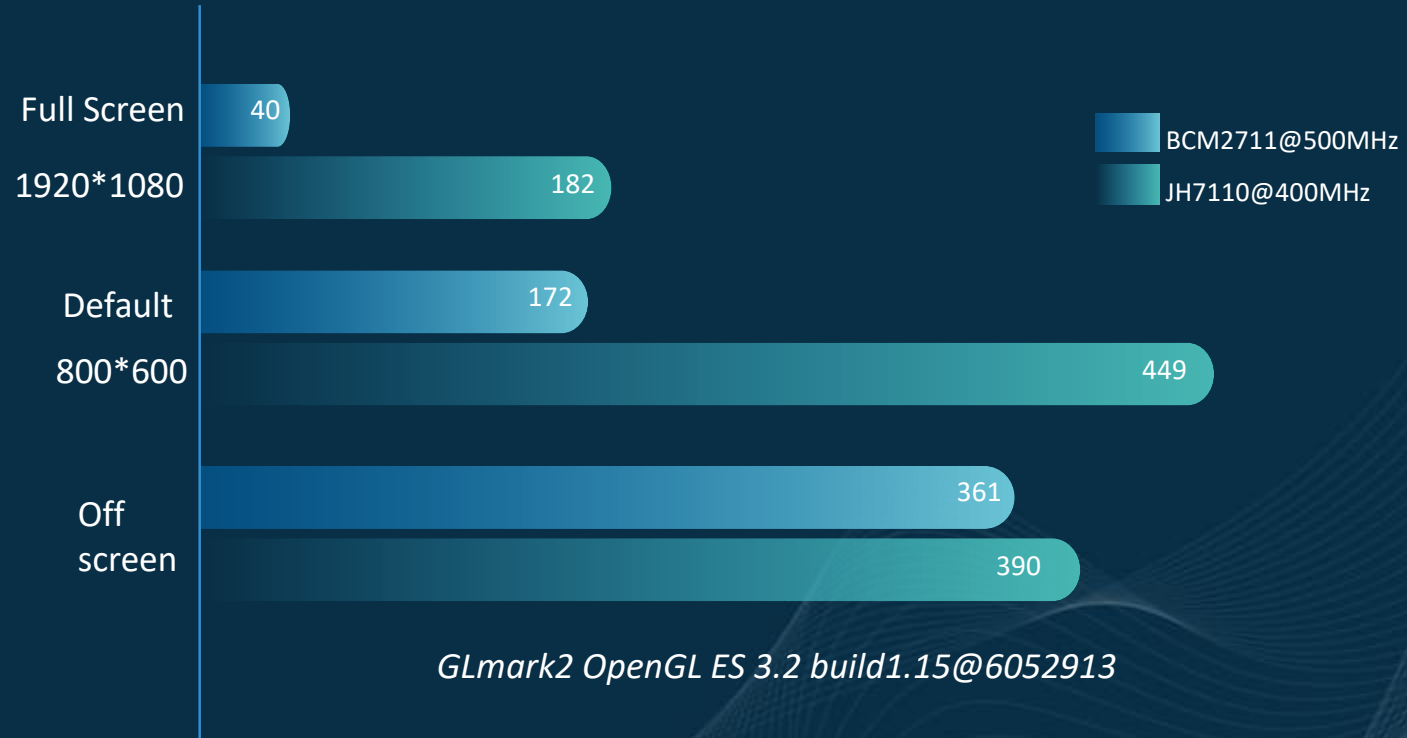
## CPU Benchmark

Coremark	Dhrystone
5.09	2.64



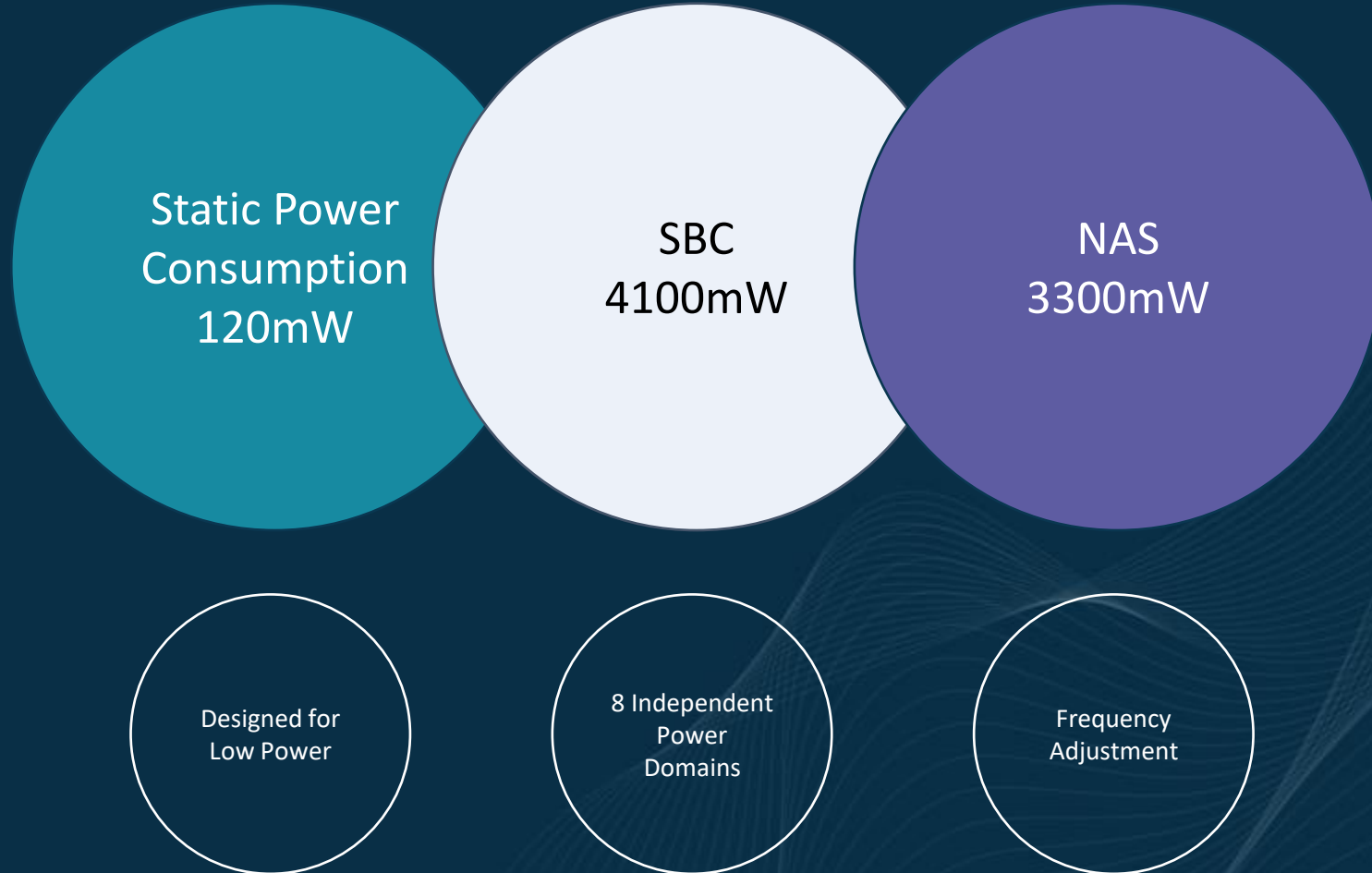
# JH7110 – High Performance

## GPU Benchmark





# JH7110 - Low Power Consumption





# JH7110 - Powerful Functions

Frequency 600MHz  
2400M/s pixel rendering capabilities  
Up to 20GFLOPS computing capabilities

Use image compression to  
reduce demand on  
bandwidth

OpenCL 3.0; OpenGL ES  
1.1/3.2/3.3; OpenGL CS 2.3;  
Vulkan 1.2; EGL 1.4

Driver and compiler added in  
the Mesa 3D library

Encoding:  
1080p@60fps  
H.264&H.265 JPEG  
2 x lane 1080P@30fps

Decoding:  
4K@60fps  
H.264 & H.265 JPEG  
4 x lane 1080P@30fps  
2 x lane 2K@60fps

ISP: 1080P@30fps  
1 x lane DVP/ MIPI-CSI

Display output:  
HDMI2.0 4K@60fps  
MIPI DSI 2K@60fps  
RGB 1080P@60fps

Support 2 x lane 4K  
Support 6 x image layer

**Image Rendering:**  
Integrated IMG GPU

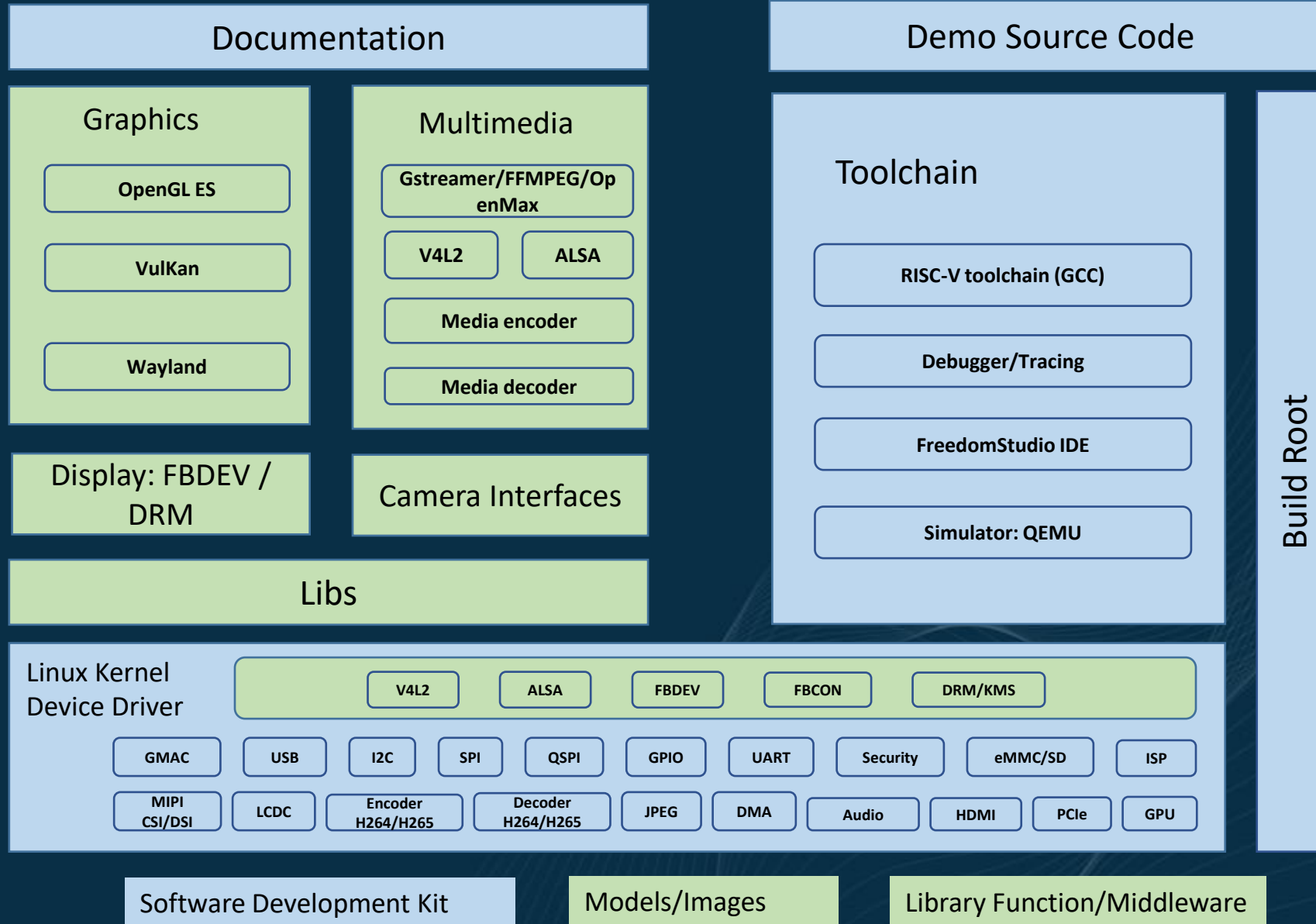
**Encoding & Decoding**

**Display**



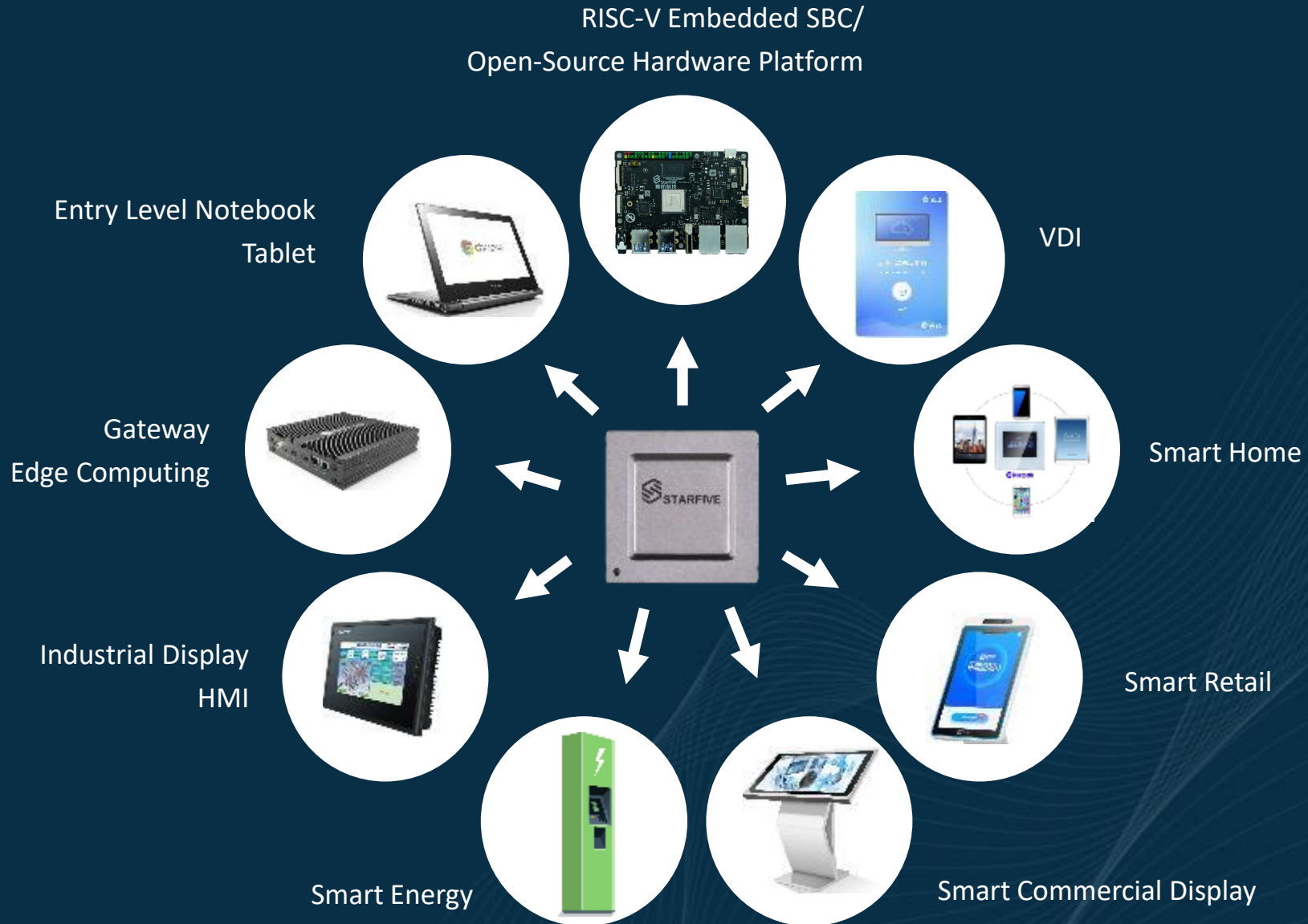


# JH7110 - Rich Software Stack

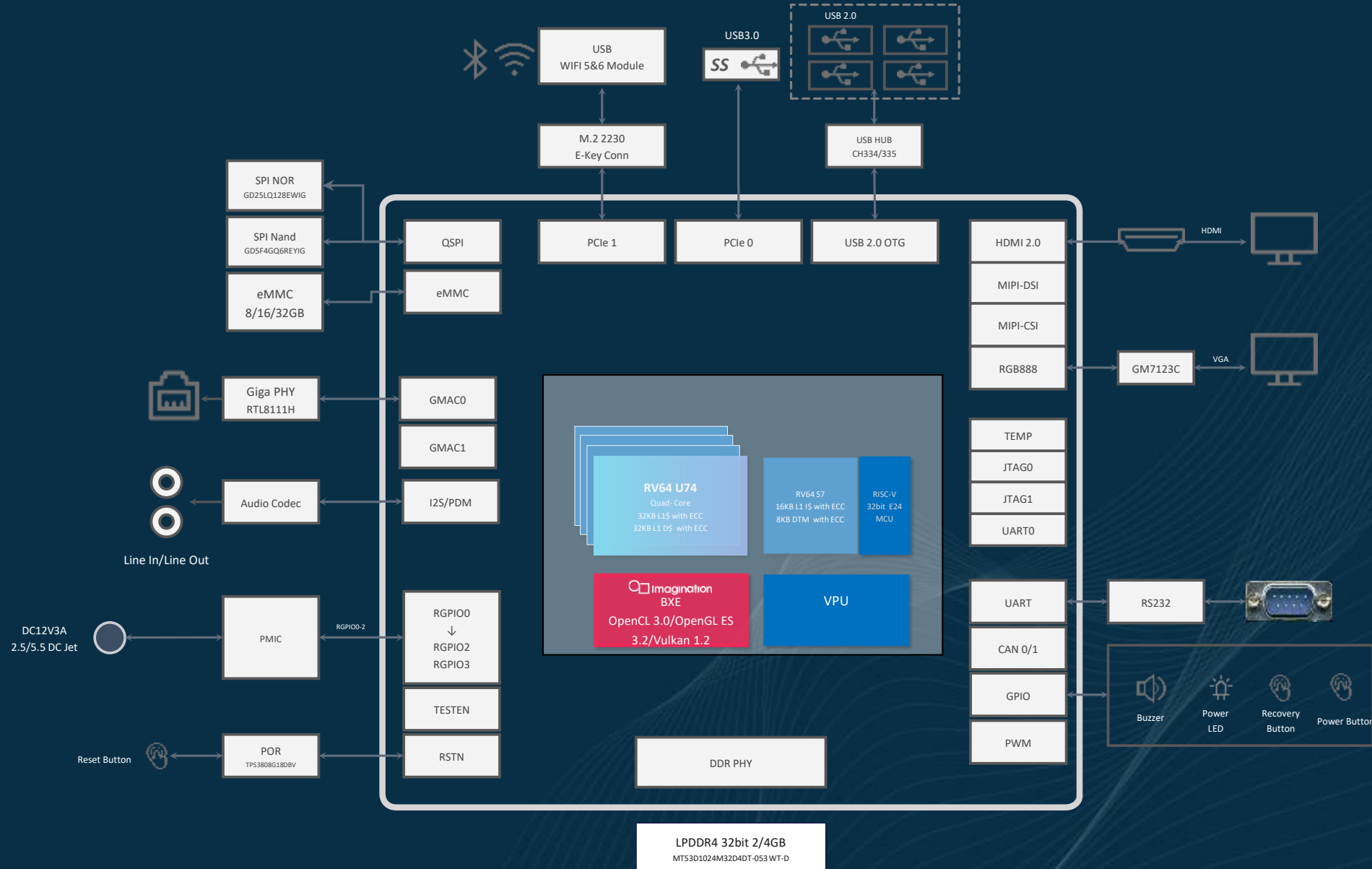




# JH7110 - Rich Scenario

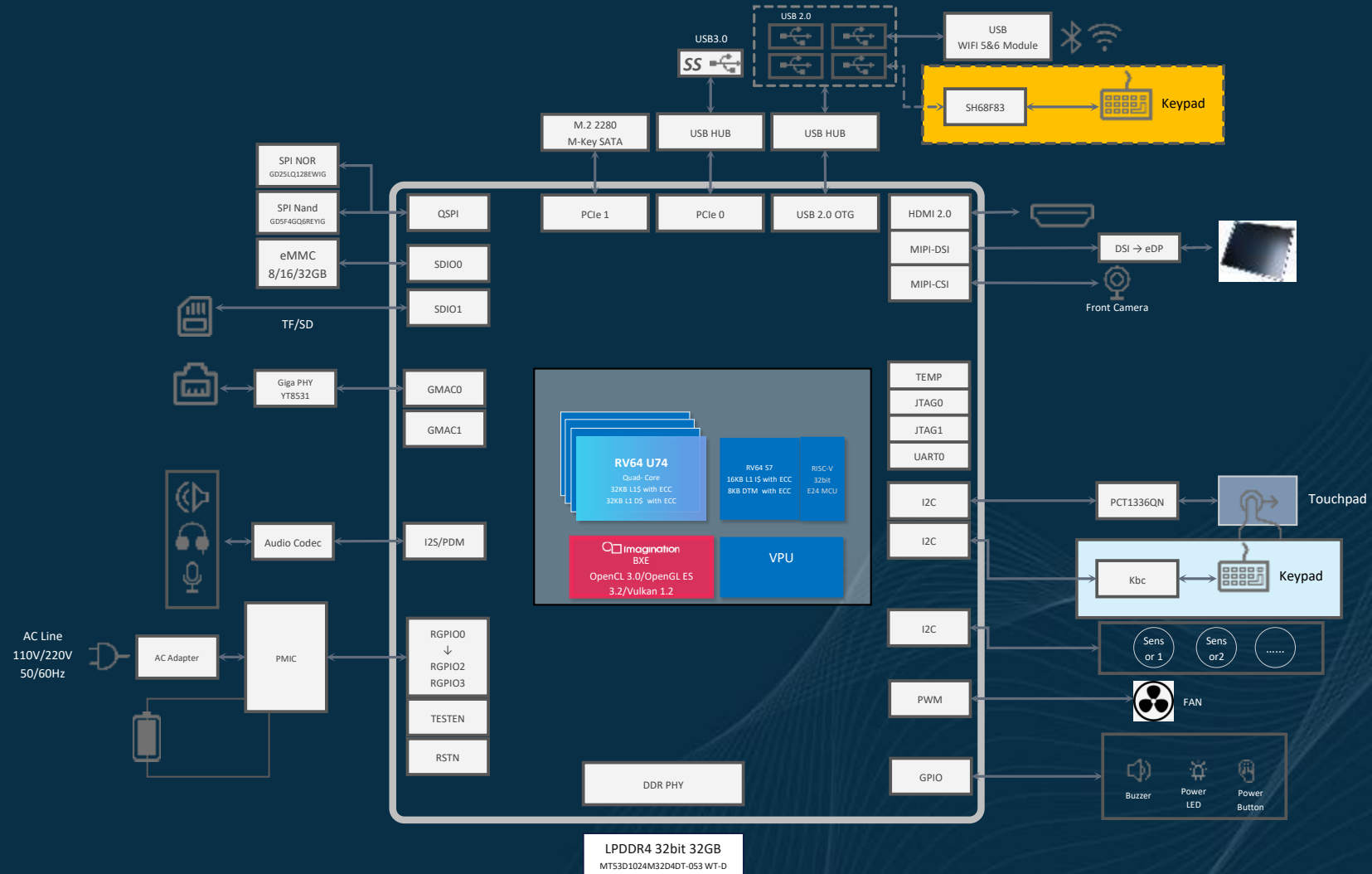


# JH7110 - Design Reference for VDI





# JH7110 - Design Reference for Laptop





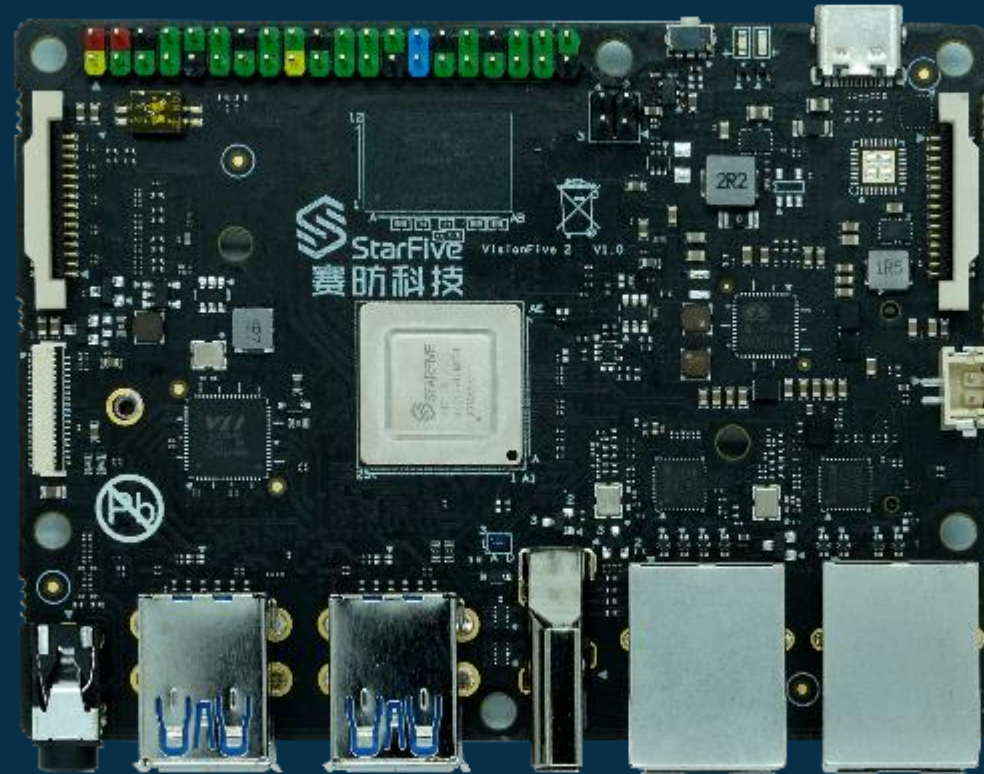
## VisionFive 2 RISC-V SBC

World's first high-performance RISC-V SBC equipped with 3D GPU for mass production

2GB LPDDR4

4GB LPDDR4

8GB LPDDR4



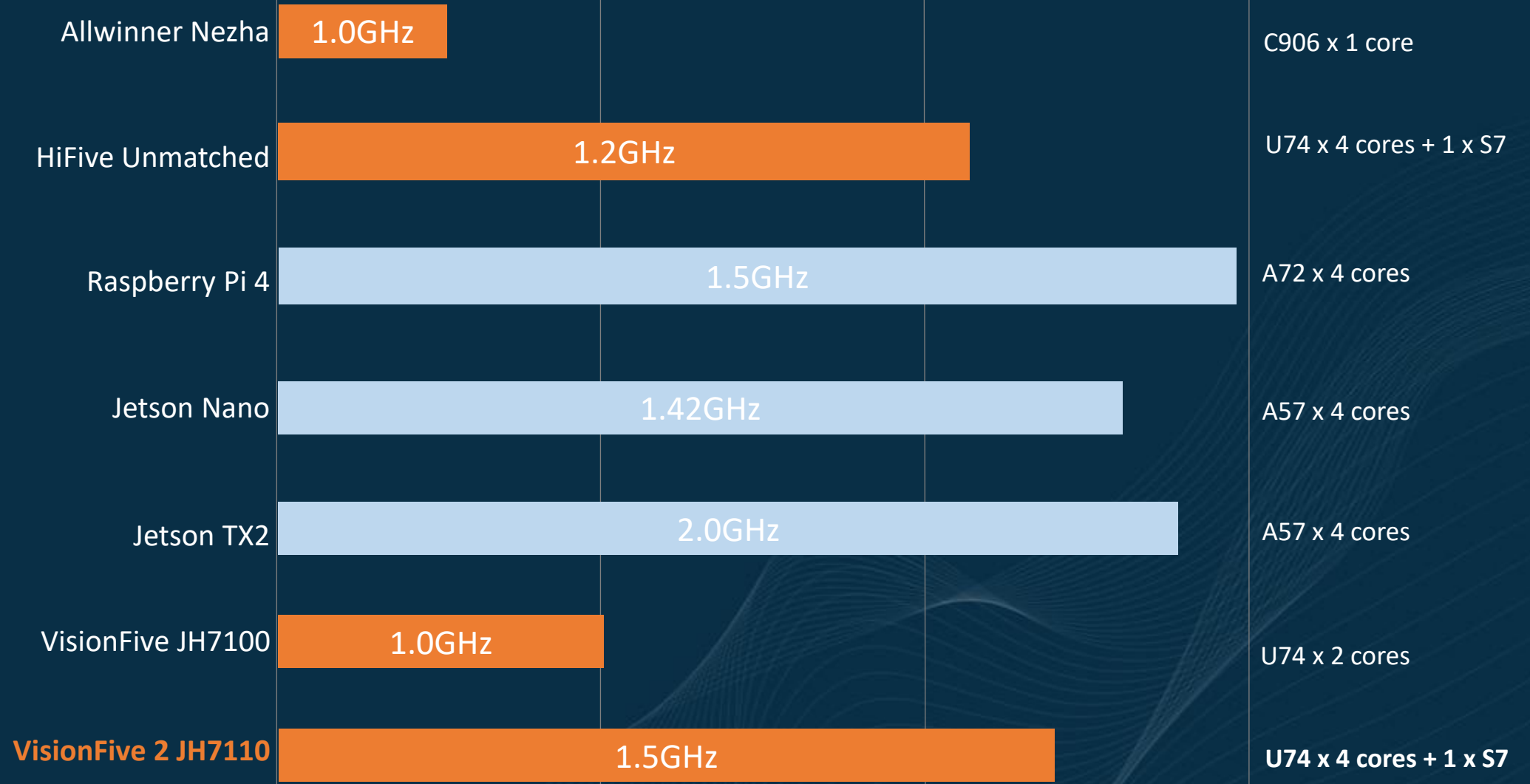
Equipped with **JH7110 SoC**

Support **Debian/Ubuntu**  
**OpenHarmony/Fedora**



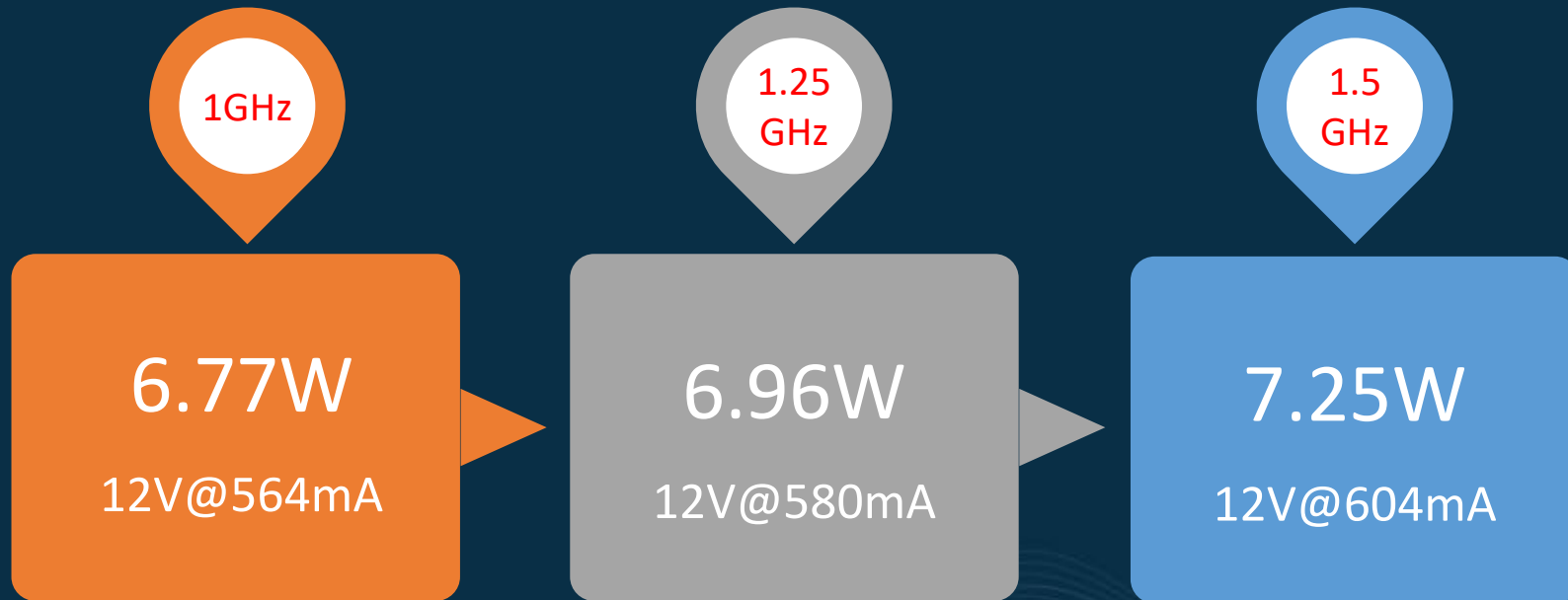


# High Performance RISC-V CPU





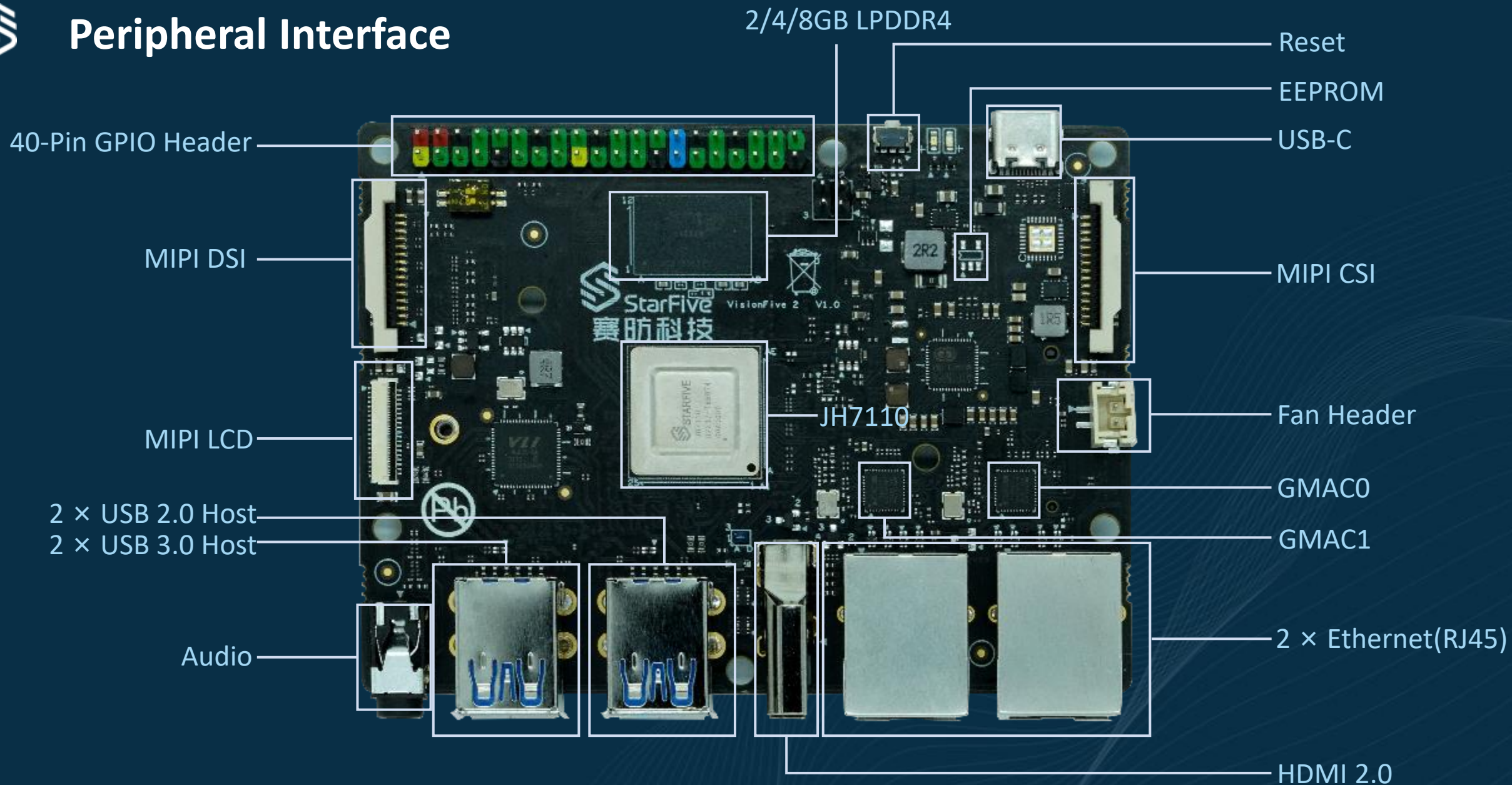
# Power Consumption



Laptop Scenario Test: CPU、MIPI CSI、ISP、HDMI、gmac1、Video Encoder、Video Decoder、JPU、PWMDAC、PCIe1(NVMe)、SD card function operation scenario



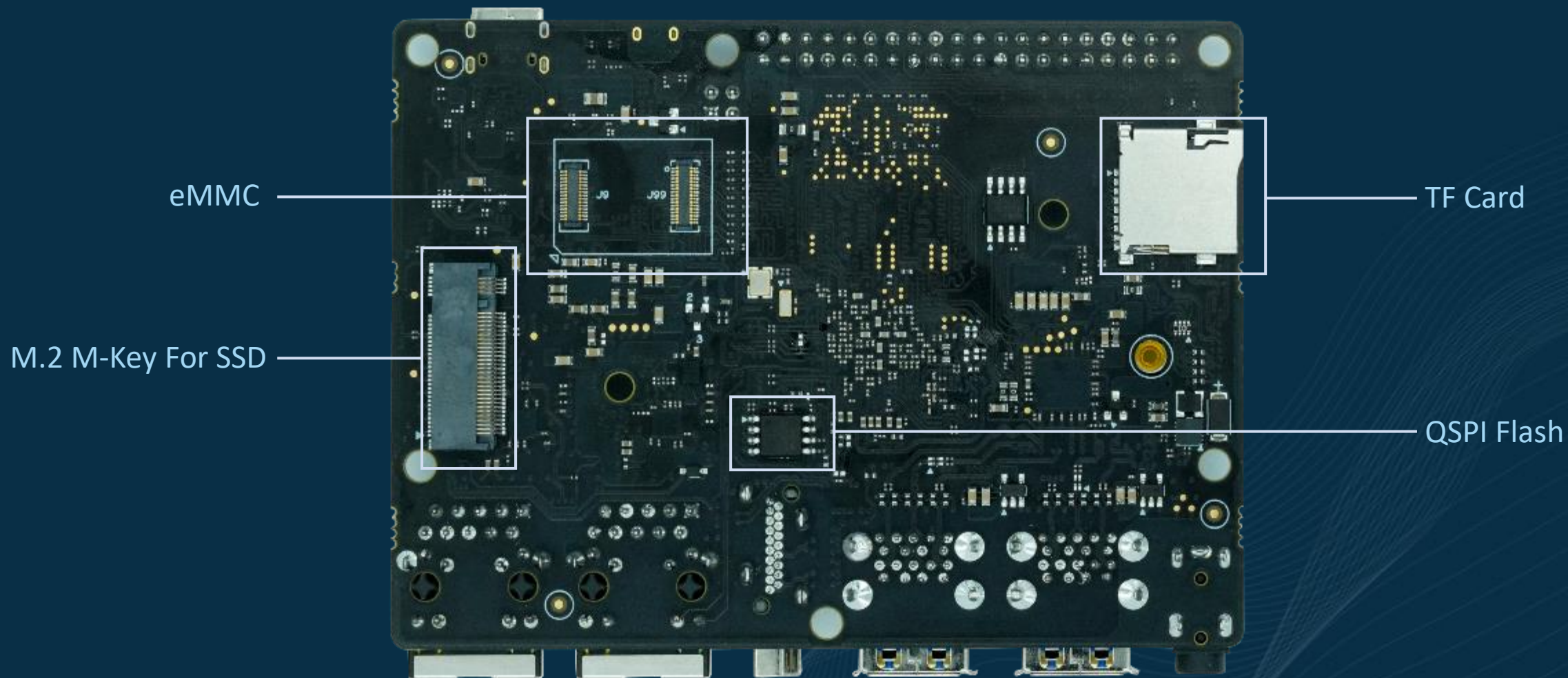
# Peripheral Interface



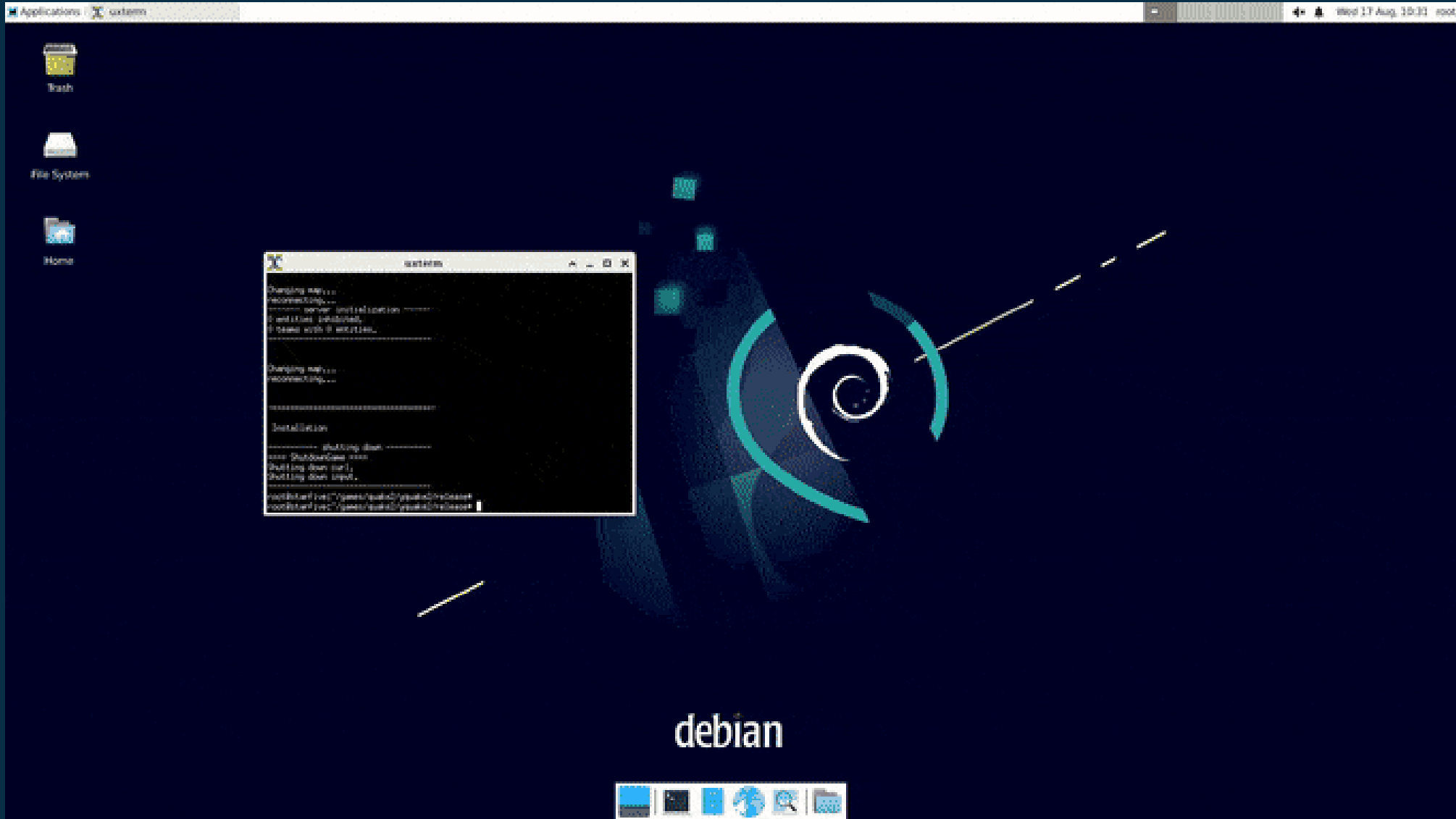




# Peripheral Interface



# VisionFive 2 Debian: 3D Game







# VisionFive 2 Debian: Productivity

The screenshot displays a Debian desktop environment with a dark theme. The desktop is populated with various icons, including files like 'test.docx', 'test.gif', and folders like 'jdk' and 'kodi-build'. A terminal window is open in the foreground, showing the following commands and output:

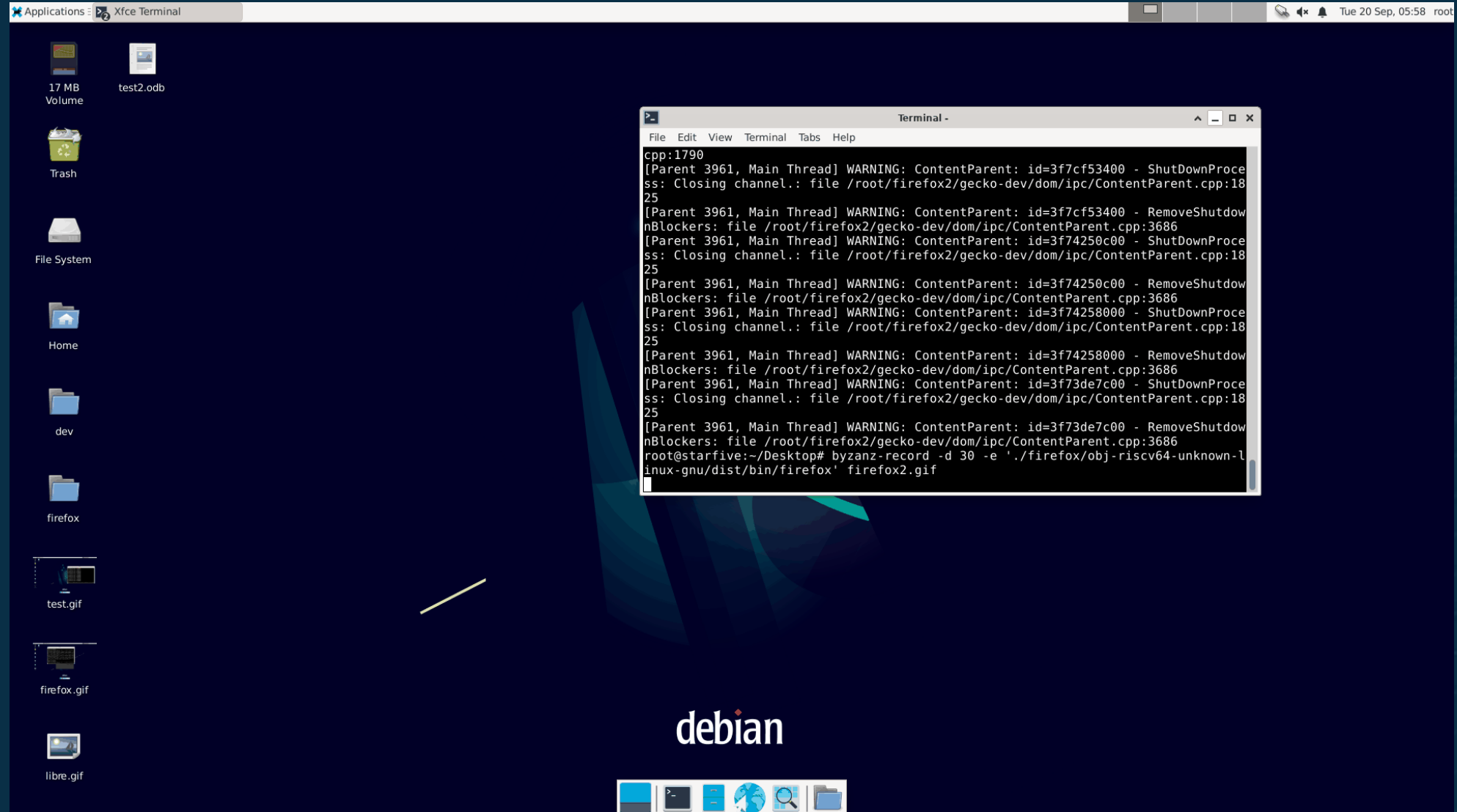
```
File Edit View Terminal Tabs Help
in deleteException: pExc = 0x2ae5cd3470
in deleteException: pExc = 0x2ae5cd3470
in deleteException: pExc = 0x2ae5cd3470
in deleteException: pExc = 0x2aef0f22b0
in deleteException: pExc = 0x2aef0f22b0
^C
root@starfive:~/Desktop/jdk/bin# ^C
root@starfive:~/Desktop/jdk/bin# byzanz-record -d 30 -e 'libreoffice7.3 --calc'
test4.gif^C
root@starfive:~/Desktop/jdk/bin# ^C
root@starfive:~/Desktop/jdk/bin# ls
jar          jdb          jmap         jstatd
jarsigner   jdeprscan   jmod         jwebserver
java        jdeps       jpackage     keytool
javac       jfr         jps          openjdk-11-jdk_11.0.16+8-1_riscv64.deb
javadoc     jhsdb      jrunscript  rmiregistry
javap       jimage     jshell      serialver
jcmd        jinfo      jstack      test4.gif
jconsole    jlink      jstat

root@starfive:~/Desktop/jdk/bin# rm test4.gif
root@starfive:~/Desktop/jdk/bin# cd ../../
root@starfive:~/Desktop# byzanz-record -d 30 -e 'libreoffice7.3 --calc' test4.gif
f
```

The terminal window also shows the Debian logo at the bottom center of the desktop environment.

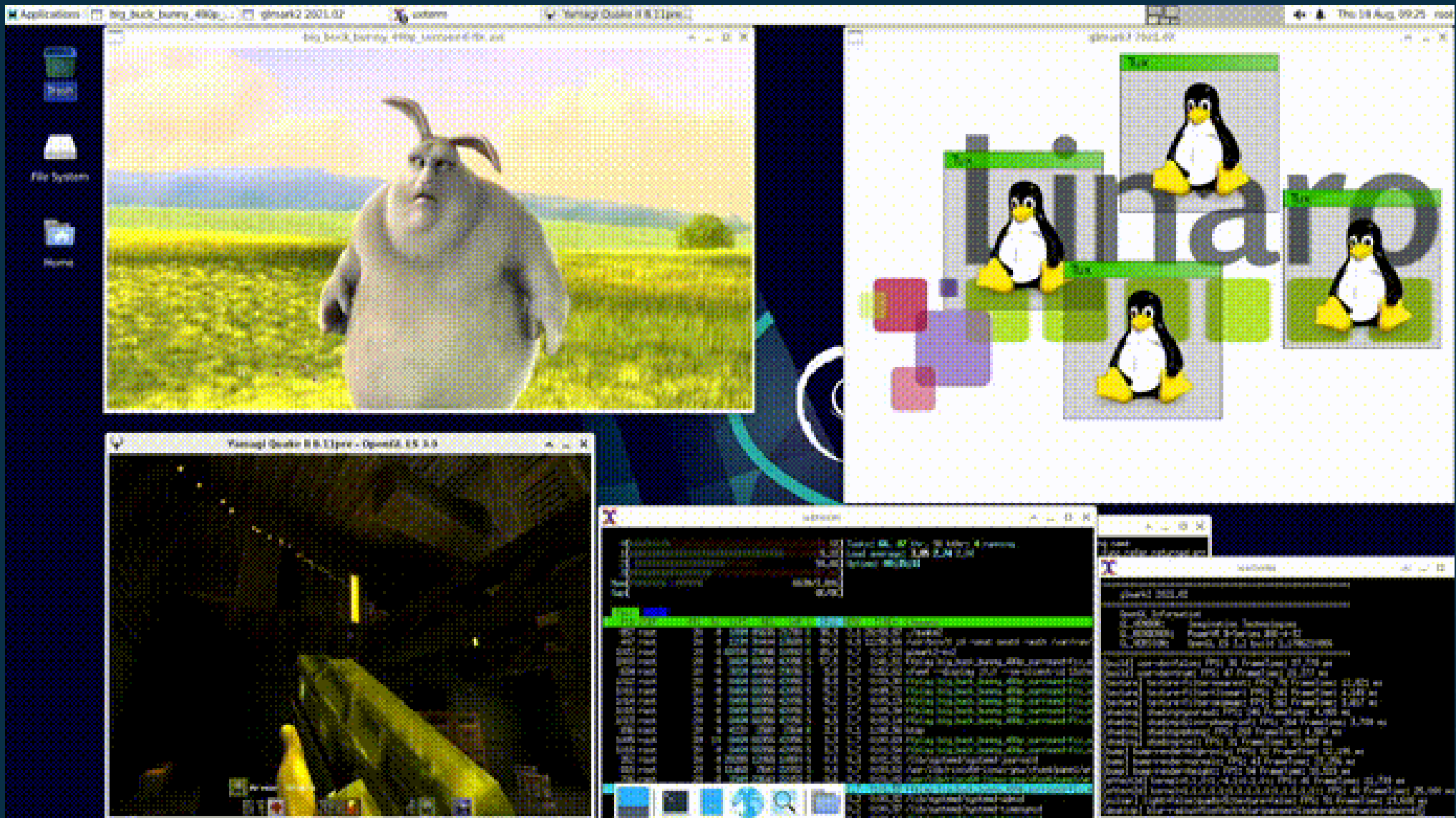


# VisionFive 2 Debian: Web



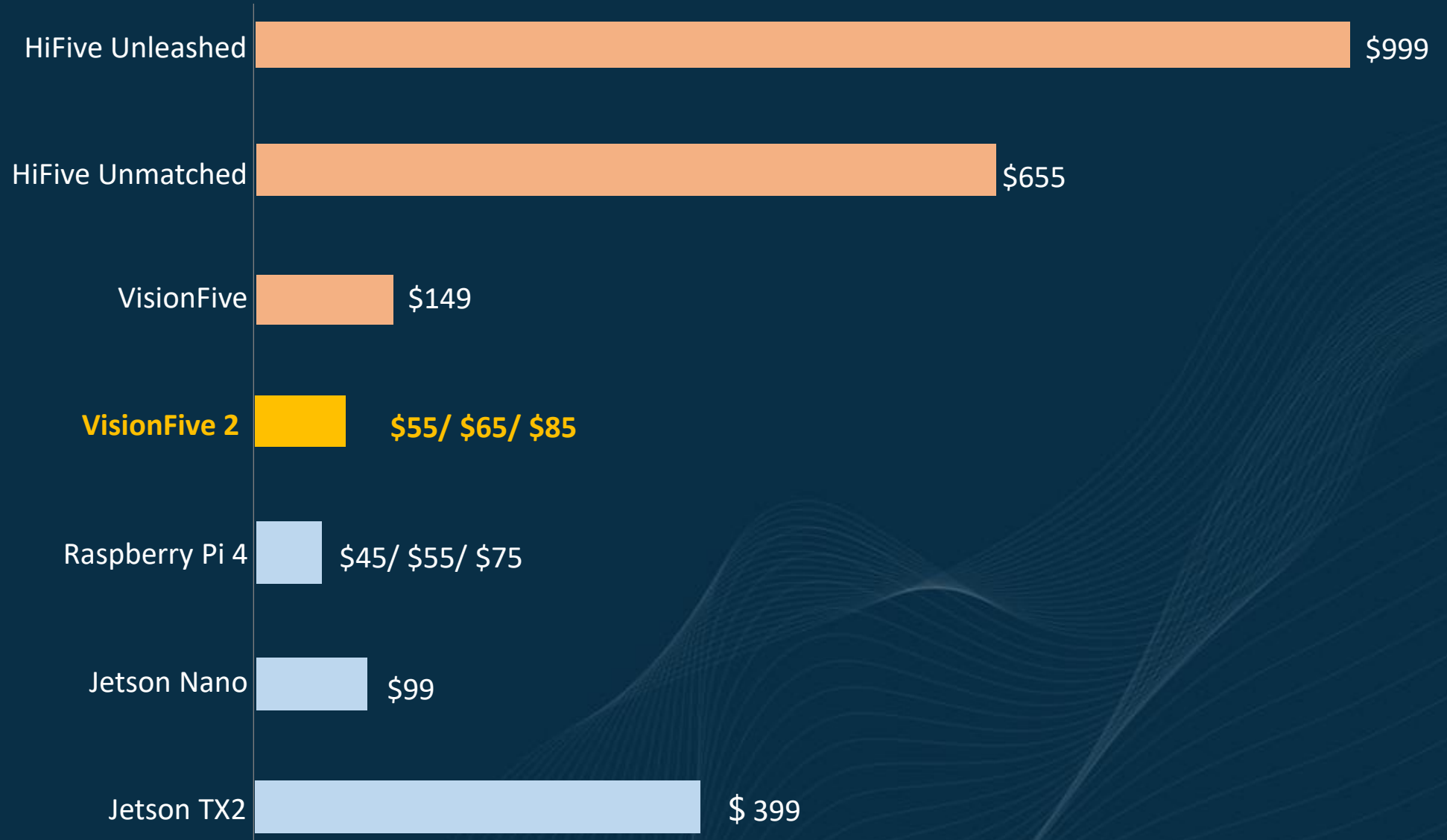


# Multi Layer Operation





# Low Price





# How to Purchase

You can obtain purchase channels on the home page of StarFive official website  
<https://www.starfivetech.com/en>



Click Here





# Software Ecosystem Progress

## Runtime & Application



## Infrastructure



## Simulator



## OS



## Compiler & Debug

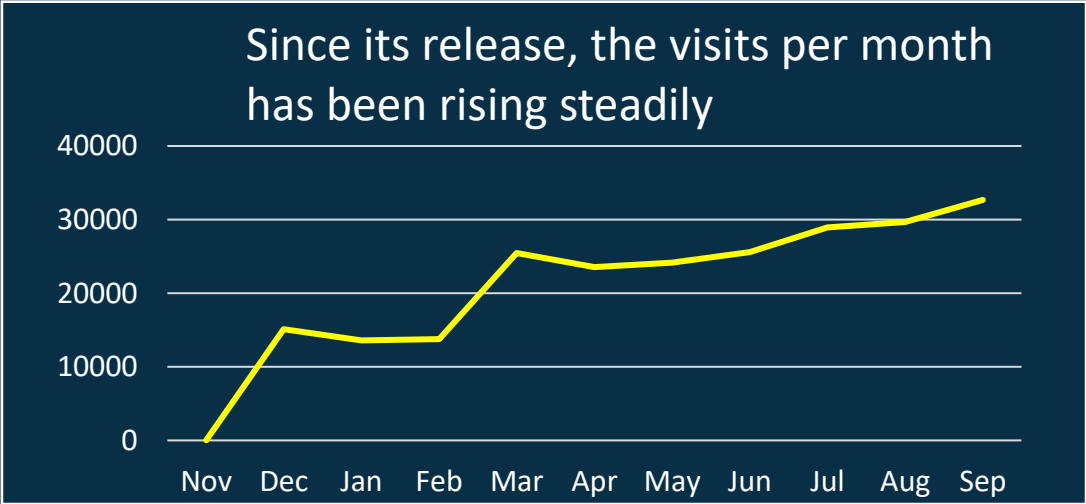


## Bootloader





# Open Community



Created 16 open-source repositories, covering hardware design, toolchain, and operating system, etc.

**Open-Source Repository**

Funded a total of 21 open-source projects in 16 countries.

**Community Funded Projects**

Published 22 newsletters with 8,200 visits.

**Information Publishing**

Published 13 sets of online documentation.

**Online Documentation**

Opened online Q&A with 4,800 visits per week.

**Technical Support**

Recognized 10 outstanding open-source contributors from 7 countries.

**Annual Award**



website: [www.starfivetech.com](http://www.starfivetech.com)

Open-Source Community: <https://rvspace.org/>

GitHub: [www.github.com/starfive-tech](http://www.github.com/starfive-tech)

# Thank You!

## crowdfunding Starts



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RVspace



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### Marketing:

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