LS3A4000

Adhering to the mature technology, LS3A4000 has carried out bold innovations in micro-structure and physical design, which boosts its performance greatly. Compared with the previous LS3A3000, the pipeline efficiency is increased by 50% under the same main frequency, and the main frequency is increased to 1.8GHz~2.0GHz. The bandwidth of the HT interface used for inter-chip interconnection and IO connection is more than doubled. The memory interface has been upgraded from DDR3 to DDR4. The micro-architecture design reaches advanced level around the world, fixed-point and floating-point score has been increased to 20 points per core in the SPEC CPU 2006. The support for virtual machines is more complete, with the efficiency of over 95%. LS3A4000 is also the first processor that fully integrates security mechanisms such as trusted computing, cryptography algorithms, and access control.

Performance doubled

- Industry-leading new generation micro-architecture: GS464V core
- more than 100% performance improved for general-purpose processing: single-core SPEC CPU 2006 reaches 20 points
- Unified ecological compatibility: Binary level compatibility with LS3A3000 operating system
- Fine power management: built-in power control core for dynamic frequency and voltage control
- Integrated graphics solution: integrated graphics in LS7A1000 chipset

Efficient cloudification

- High-end multi-channel: 2-channel, 4-channel fully associated structure

with cache coherency

- High-speed interconnection: the cross-chip memory access bandwidth is increased to more than 400%

- High-performance support: the general processing capacity of the 4-way server is increased by more than 200%

- Efficient virtualization: the computing efficiency of KVM virtual machine is increased to more than 95%

Endogenous safety

- Special mechanisms to prevent Meltdown and Spectre attacks

- Special mechanisms to prevent cache overflow attacks

- Support special instructions for AES, MD5, SHA and other algorithms

- On-chip integrated secure and trusted computing

- kernel stack protection mechanism

- High-performance cryptography algorithm service capability (100M to 1000M), supporting commercial encryption algorithms and above

- access control such as IO protection and safe execution environment

LS3A4000		
CPU Specifications	Core Name	GS464V
	# of Cores	4
	# of Threads	4
	Frequency	1.8GHz–2.0GHz
	Cache	L1 I-cache 64KB each core L1 D-cache 64KB each core L2 cache 256KB each core LL cache 8MB
	Power consumption	<30W@1.5GHz <40W@1.8GHz <50W@2.0GHz
Memory Specifications	Memory Types	DDR4-2400
	Max # of Memory Channels	2
	ECC Memory Supported	yes
I/O Specifications	HyperTransport Revision	HyperTransport 3.0 ×2 Support multi-processor data consistent interconnection (CC-NUMA); Support 2/4/8 way interconnection
	Other I/O	SPI, UART, I2C×2, GPIO×16