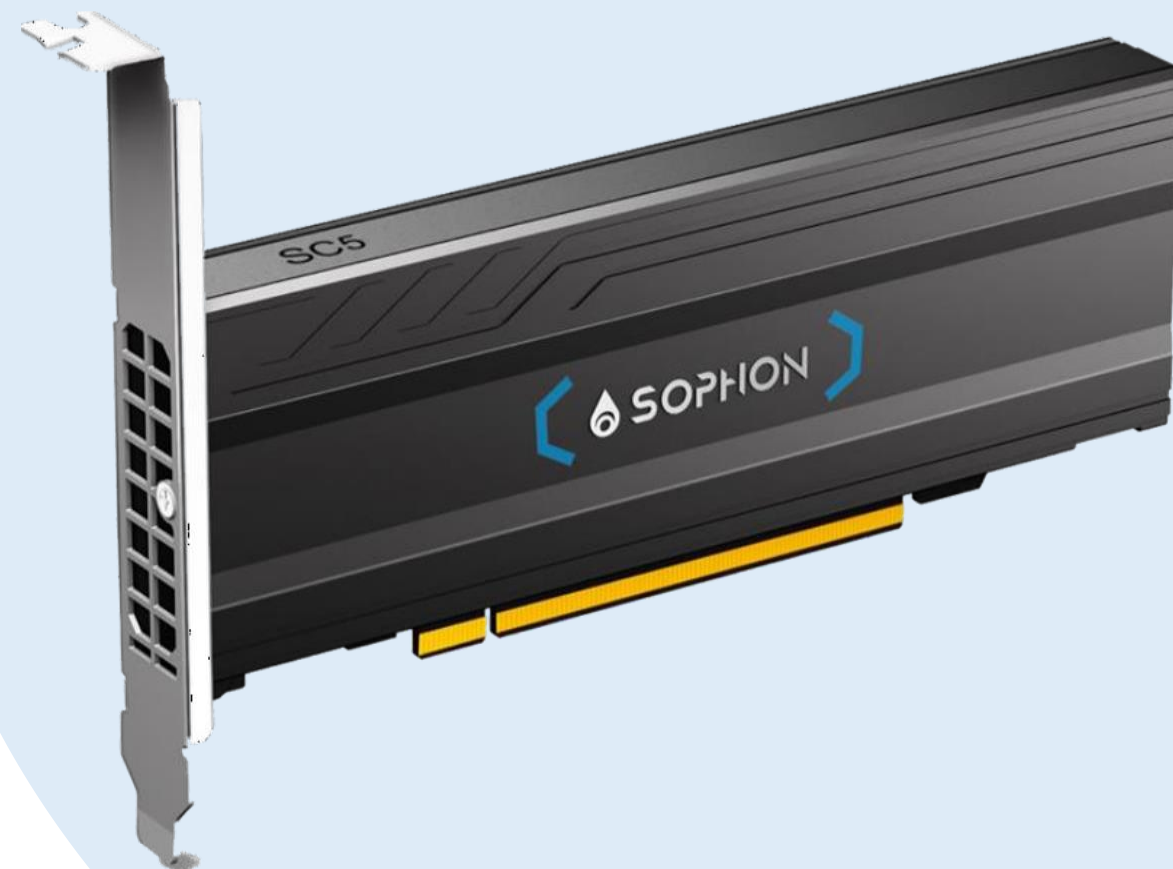


# Smart Computing Card SC5+

Based on the third-generation intelligent vision deep learning processor BM1684

**SOPHGO**



# Smart Computing Card SC5+ | Product Features



## Ultra-high Performance Computing Power

Support INT8/ FP32

Support for Mixed Precision Inference



## Usability

Support for virtualization applications;  
Support for containerized deployment,  
compatible with Kubernetes scheduling;  
Mature and user-friendly toolchain, fast  
and simple algorithm migration with  
Support for custom operators and custom  
layers



## Encoding/Decoding and Transcoding Capabilities

Support for 48-channel 1080P full HD video full-process handling

Support for 114-channel 25fps high-definition video hardware decoding

Support for 6-channel 25fps high-definition video hardware encoding

Supports on-chip transcoding of 54 video streams from 1080P to CIF format



## Compatibility

Algorithm Framework : Caffe / TensorFlow / PyTorch / MXNet / Darknet / PaddlePaddle / ONNX

Operating System : CentOS / Ubuntu / Debian / Kylin / UnionTech UOS

Domestic Processors: Feiteng, Hygon, ShenWei, Loongson

# Smart Computing Card SC5+ | Product Specifications

Product Specification		SC5H	SC5+	SC5 HA75
Physical dimensions		Half-height half-length single-wide	Half-height half-length single-wide	Half Height Full Length Single Width
Data processing		Supports FP32/IN8 mixed precision inference		
Processors		ARM 8 core A53 @2.3GHz	3x ARM 8 core A53 @2.3GHz	3x ARM 8 core A53 @2.3GHz
Video Codec	Video Decoding Capability	H.264&H.265:1080P @960fps	H.264&H.265:1080P@2880fps	H.264&H.265:1080P@2880fps
	Video Decoding Resolution	CIF/D1/720P/1080P/ 4K(3840×2160)/ 8K(8192×4096)/ 8192×8192		
	Video Encoding Capability	H.264&H.265:1080P@50fps	H.264&H.265:1080P@150fps	H.264&H.265:1080P@150fps
	Video encoding resolution	CIF/D1/720P/1080P/4K(3840×2160)		
	Video transcoding capability (1080P to CIF)	Maximum 18 channels	Maximum 54 channels	Maximum 54 channels
Image Codec	JPEG image decoding capability	480 fps@1080P	1440 fps@1080P	1440 fps@1080P
	Maximum resolution (pixels)	32768×32768	32768×32768	32768×32768

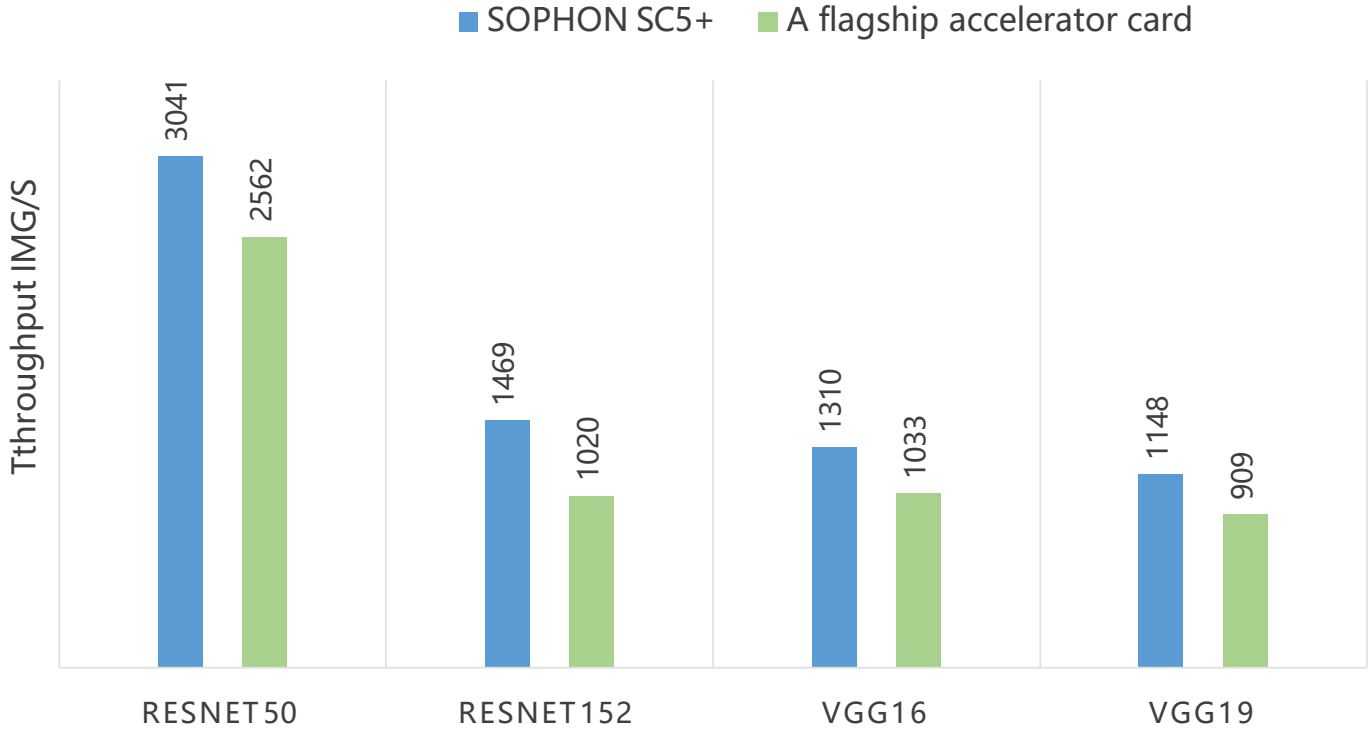
# Smart Computing Card SC5+ | Product Specifications

Product Specification		SC5H	SC5+	SC5 HA75
System interfaces	Data link	PCIE X16	PCIE X8	PCIE X8
	Working mode	EP	EP	EP
	Physical/Power Interface	PCIE X16	PCIE X16	PCIE X16
Memory	Standard configuration	12GB	36GB	36GB
Power wastage		30W MAX	75W MAX	75W MAX
Heat dissipation method		Active heat dissipation	Passive heat dissipation	Active heat dissipation
Working temperature		-10℃-55℃	0℃-55℃	0℃-55℃
Deep Learning Framework		TensorFlow / Pytorch / Caffe / PaddlePaddle / ONNX / MXNet / Darknet		
Operating System Support			Ubuntu / CentOS / Debian	
Compatibility		Compatible with mainstream x86 architecture, ARM architecture servers		
Support for localization		Support domestic processor systems such as Fetion, Shenwei, Longxin, Haikuang, etc.; support domestic Linux operating systems such as Kirin, UOS, etc;Support domestic deep learning frameworks such as Paddle Lite, Tengine, etc.		

# Smart Computing Card SC5+ | Performance Comparison



## Image analysis capability (Img/s)



\* Data source: A&S organization official evaluation (published in A&S security automation magazine issue 240)  
\* Data description: Data based on INT8 quantitative Batch4 measurement

# Smart Computing Card SC5+ | BM1684 Processor Introduction

1 Independently developed TPU architecture

Supporting INT8/FP16/BF16/FP32

2 LPDDR4/LPDDR4x

68.3GB/s, Maximum capacity of 16GB

3 8 core ARM A53 Clock Speed

2.3GHz, 42320 DMIPS

4 Video decoding 1080p@960fps

Video encoding 1080P @25fps

MJPEG image encoding/decoding  
480fps 1080P

Video post-processing system

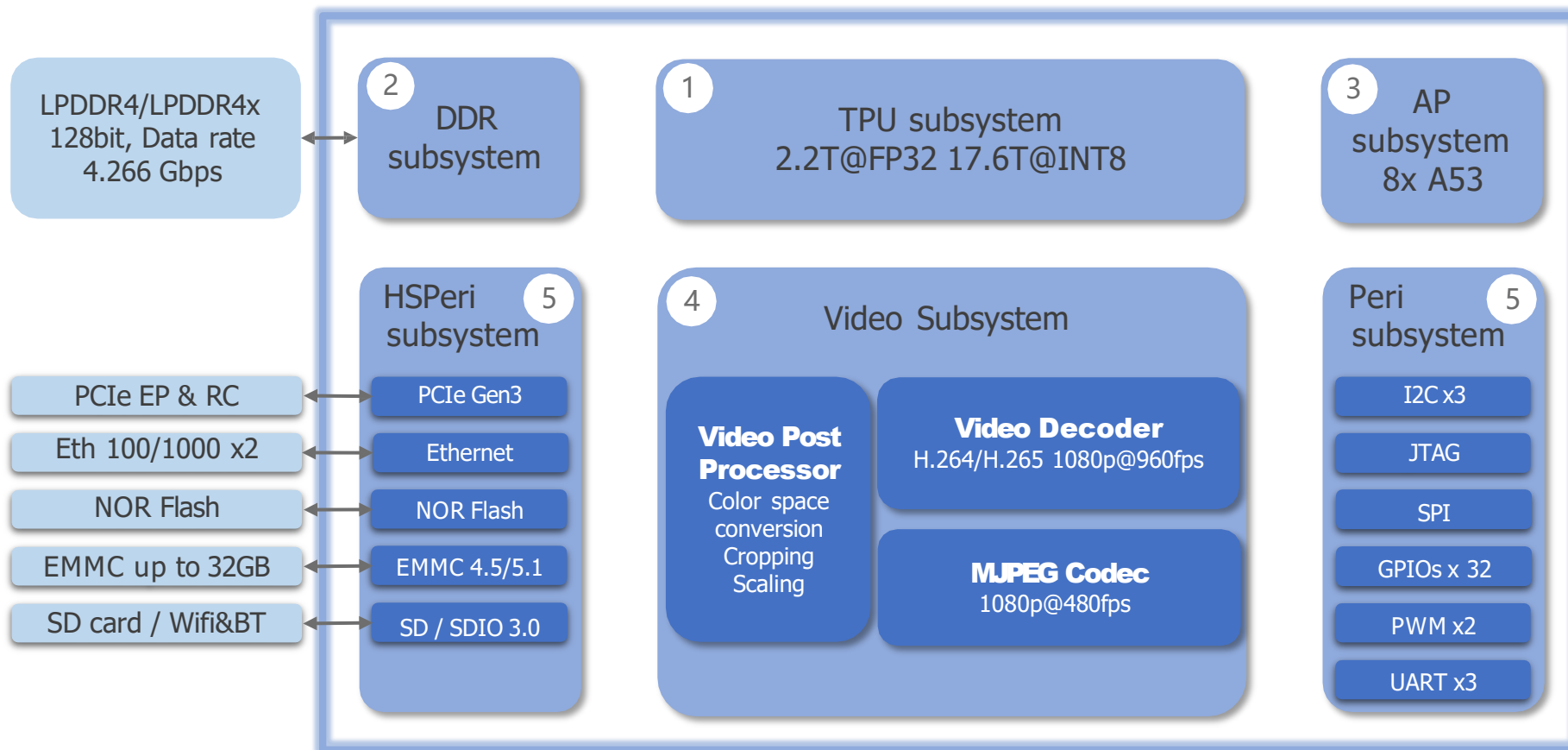
5 Dual Gigabit Ethernet Ports PCIE  
RC/EP

Various low-speed interfaces

6 -40~105°C

Typical power consumption of 17W

## BM1684



# Smart Computing Card SC5+ | Algorithm Ecosystem

Application Industries	Algorithm Features	Company
Government	Human-Vehicle Unstructured Data	SEEMMO
	Pedestrian Detection / Vehicle Detection	Cloud.baidu
Urban Governance	Encroachment of Public Space / Street Drying / Missing Manhole Covers / Road Waterlogging, etc.	evecom
	Illegal Parking / Illegal Burning / Encroachment of Public Space / Roadside Litter, etc.	HONGDU
Traffic	Highway Defect Detection, etc.	COSCO
Judiciary / Detention Facilities	Crowd Gathering / Person Climbing / Staff Absenteeism, etc.	BASIC
	Crowd Gathering / Fighting Detection / Area Intrusion, etc.	ZHENTU
Factory / Construction Site / Community	High-Altitude Object Dropping / Electric Vehicle Detection / Power Inspection	sinnomic
	Face Detection / Vehicle Detection / Flame Detection, etc.	LIUZI Technology
	Fireworks Detection / High-Altitude Object Dropping, etc.	GDDi Technology(Shenzhen) Co.LTD
	Face	KUKE3D
	Face	Corsface
	Flame Detection / Personnel Access Detection / Safety Helmet Detection / Cellphone Usage Detection / Boundary Crossing Detection, etc.	360
	Fireworks Detection / Illegal Parking Detection / Smoking Detection / Fire Lane Detection, etc.	GRANDHONOR
	Crowd Gathering Detection / Climbing Detection / Absence from Post Detection, etc.	BASIC
Coal Mine	Hazardous Chemicals Detection	HAITU TECHNOLOGY
Catering Industry	Detection of Various Violations / Harmful Organisms Detection, etc.	THUNISOFT



# Smart Computing Card SC7 HP75 | Accreditation

Dependability

CE

RoHS

FCC

REACH(SVHC 205 items)



The First Research Institute of the Ministry of Public Security

Phytium

HYGON

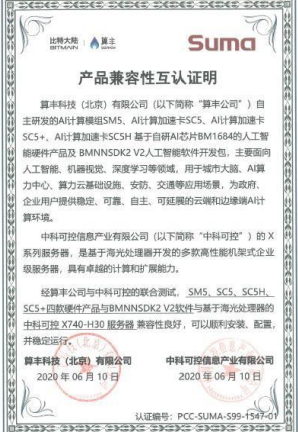
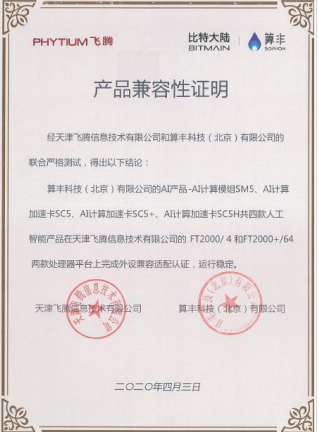
Kylin

UOS

Paddle

Tengine

## Third-party vendor mutual authentication







## SOPHGO

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