



SDK Differences Between Hi3516D V300 and Hi3519A V100

Issue	01
Date	2019-09-15

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About This Document

Purpose

Hi3516D V300 and Hi3519A V100 are IP camera system-on-chips (SoCs) launched by HiSilicon. The SDK of Hi3516D V300 is similar to that of Hi3519A V100 which has been previously released, but some specifications and APIs are modified. This document describes the differences between Hi3516D V300 and Hi3519A V100 in specifications as well as the changes in the SDK components and MPIs.

Related Version

The following table lists the product version related to this document.

Product Name	Version
Hi3516D	V300

Intended Audience

This document is intended for:

- Technical support engineers
- Software development engineers

Change History

Changes between document issues are cumulative. The latest document issue contains all changes made in previous issues.

Issue 01 (2019-09-15)

This issue is the first official release, which incorporates the following changes:

Table 1-1 is modified.



Issue 00B03 (2019-01-15)

This issue is the third draft release, which incorporates the following changes:

Table 1-1 and Table 3-1 are modified.

Issue 00B02 (2018-10-12)

This issue is the second draft release, which incorporates the following changes:

Chapter 2, Table 2-1 is modified.

Issue 00B01 (2018-07-15)

This issue is the first draft release.



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1 Specification Differences

[Table 1-1](#) describes the specification differences between Hi3516D V300 and Hi3519A V100. For details about the specifications of Hi3516D V300, see the *Hi3516D V300 Professional Smart IP Camera SoC Data Sheet*.

Table 1-1 Differences in the specifications

Major Specifications	Hi3516D V300	Hi3519A V100
Processor	2 x ARM Cortex-A7@ 900 MHz, 32 KB I-cache, 32 KB D-cache, and 256 KB L2 cache	2 x ARM Cortex A53@ 1.2 GHz, 32 KB I-cache, 32 KB D-cache, and 256 KB L2-cache
DSP	Not supported	1 x DSP, supporting the 32 KB I-Cache, 32 KB I-RAM, and 512 KB data RAM
DPU	Not supported	Supported
AVS	Not supported	Supported
GDC	<ul style="list-style-type: none">LMF not supportedNormal correction for fisheye cameras fixed on the wall	<ul style="list-style-type: none">LMF supportedThree fisheye correction modes: 360° panoramic mode, 180° panoramic mode, and normal mode
VPSS	Three physical channels	<ul style="list-style-type: none">Four physical channels
VGS	-	-
VENC	<ul style="list-style-type: none">H.265 Main ProfileH.264 Baseline Profile, Main Profile, and High Profile, level 5.1I-slices and P-slices supported by H.265 and H.264 encodingJPEG Baseline ProfileFrame memory saving mode.OSD in 2BPP format.Default quantization/non-quantization table for H.265	<ul style="list-style-type: none">H.265 Main ProfileH.264 Baseline Profile, Main Profile, and High Profile, level 5.1I-slices, P-slices, and B-slices supported by H.265 and H.264 encodingJPEG Baseline ProfileUser-defined quantization table and default quantization/non-quantization table for H.265



Major Specifications	Hi3516D V300	Hi3519A V100
Video encoding performance	<ul style="list-style-type: none">• Up to 2688-pixel wide and 2688 x 1944 resolution for H.265 and H.264 encoding• H.265 and H.264 encoding performance:<ul style="list-style-type: none">- 2688 x 1536@30 fps + 720 x 480@30 fps + 360 x 240@30 fps- 2688 x 1944@20 fps + 720 x 480@20 fps + 360 x 240@20 fps• Maximum resolution of JPEG encoding: 8192 x 8192• Maximum performance of JPEG encoding: 16 MP (4608 x 3456)@10 fps• Maximum bit rate of H.265 and H.264 encoding outputs: 50 Mbit/s• Encoding of eight ROIs	<ul style="list-style-type: none">• Maximum resolution of H.265 and H.264 encoding: 8192 x 8192• H.265 and H.264 encoding performance:<ul style="list-style-type: none">- 3840 x 2160@60 fps + 720p@30 fps• Maximum resolution of JPEG encoding: 8192 x 8192• Maximum performance of JPEG encoding: 16 MP (4608 x 3456)@30 fps• Maximum bit rates of H.265 and H.264 encoding outputs respectively: 120 Mbit/s and 200 Mbit/s• Encoding of eight ROIs
VDEC	<ul style="list-style-type: none">• Maximum resolution of H.265 and H.264 decoding: 2688 x 1944• Maximum performance of H.265 and H.264 decoding:<ul style="list-style-type: none">- 2688 x 1536@30 fps• Maximum performance of JPEG decoding: 16 MP (4608 x 3456)@10 fps• Self-encoding/decoding only	<ul style="list-style-type: none">• Maximum resolution of H.265 and H.264 decoding: 8192 x 8192• Maximum performance of H.265 and H.264 decoding:<ul style="list-style-type: none">- 3840 x 2160@60 fps• Maximum performance of JPEG decoding: 16 MP (4608 x 3456)@30 fps
NNIE	1 x NNIE, total performance of 1.0 TOPS	1 x NNIE, total performance of 1.7 TOPS
IVE	<ul style="list-style-type: none">• MatchBgModel, UpdataBgModel, ANN, SVM, and CNN not supported• PSP, HOG, and KCF operators supported	<ul style="list-style-type: none">• MatchBgModel, UpdataBgModel, ANN, SVM, and CNN supported• PSP, HOG, and KCF operators not supported
Security module	<ul style="list-style-type: none">• Standard AES-CBC, ECB, CFB, OFB, and CTR modes• The AES supports the encryption and decryption of the 128-bit, 192-bit, and 256-bit hardware keys from the keyladder.• 1024-width, 2048-width, and 4096-width RSA keys	<ul style="list-style-type: none">• Standard AES-CBC, ECB, CFB, OFB, CTR, CCM, and GCM modes• The AES supports the encryption and decryption only of the 128-bit hardware key from key ladder.• 1024-width, 2048-width, 3072-width, and 4096-width RSA keys
ISP	<ul style="list-style-type: none">• Detail enhancement supported.• Radial shading not supported• FPN frame mode supported	<ul style="list-style-type: none">• Detail enhancement not supported• Radial shading supported• FPN frame and line modes supported



Major Specifications	Hi3516D V300	Hi3519A V100
Audio	HDMI 1.4 output	HDMI 2.0 output
VI	<ul style="list-style-type: none">• Up to 4-lane image sensor serial input• Two sensor serial input• One YUV input through MIPI• One channel• SLVS-EC interface not supported	<ul style="list-style-type: none">• Up to 12-lane image sensor serial input• 5-lane sensor serial input• 1-lane to 4-lane YUV inputs through the MIPI virtual channel• Two channels• SLVS-EC interface
VO	<ul style="list-style-type: none">• One video layer• One graphics layer• One output device• WBC not supported• HDMI 1.4 output	<ul style="list-style-type: none">• Three video layers• Two graphics layers• Two output devices• WBC supported• HDMI 2.0 output
Memory interface	<ul style="list-style-type: none">• 32-bit DDR3 (L) and DDR4 SDRAM interfaces• SPI NOR flash interface• SPI NAND flash interface• NAND flash interface not supported• eMMC 4.5 interface	<ul style="list-style-type: none">• 32-bit DDR4, LPDDR4, and LPDDR3 SDRAM interfaces• SPI NOR flash interface• SPI NAND flash interface• NAND flash interface• eMMC 5.1 interface
Peripheral interface	<ul style="list-style-type: none">• Two SDIO 3.0 interfaces• One USB 2.0 interface (without the PCIe interface)• 2-channel LSADC• Three PWM interfaces	<ul style="list-style-type: none">• Two SDIO 3.0 interfaces• One interface multiplexed as the USB 3.0 or PCIe 2.0 interface and one USB 2.0 interface, host and device configurable• 4-channel LSADC• Eight PWM interfaces



2 SDK Differences

Table 2-1 describes the differences in the SDK components between Hi3516D V300 and Hi3519A V100.

Table 2-1 SDK differences

Component	Hi3516D V300	Hi3519A V100
Lib	-	-
Tool chain	-	-
Linux Kernel	linux-4.9.37, supporting Cortex-A7	linux-4.9.37, supporting Cortex-A53
File system	-	-



3 MPI Differences

Table 3-1 describes the MPI differences between Hi3516D V300 and Hi3519A V100. For details, see the *Hi3516D V300 and Hi3519A V100 MPI Interface Differences*, *ISP Interface Differences between Hi3516D V300 and Hi3519A V100*, and *HiMPP V4.0 Media Processing Software Development Reference*.

Table 3-1 Differences in the MPIs

Module Name	Difference Extent of Hi3516D V300 Compared with Hi3519A V100	Description
System control/VB	Same	-
ISP	Partially modified	Some parameters of DRC, WDR, and CA are not supported. Some parameters are added to DE interfaces
MIPI	Partially modified	Some specifications are deleted. For example, SLVS is not supported. Some specifications are modified. For example, the MIPI supports up to 4 lanes.
VI	Partially modified	<ul style="list-style-type: none">The Bayer field scaling function is not supported.The interfaces related to interrupt reporting in advance are not supported.The numbers of supported devices and channels change.
Video pre-processing	Partially modified	<ul style="list-style-type: none">3DNR parameters are added.The 3DNR function for the snapshot mode is added.The sharpening interface is not supported.
VENC	Partially modified	<ul style="list-style-type: none">The B-frame encoding is not supported.The frame saving mode is added.
VDEC	Partially modified	<ul style="list-style-type: none">The B-frame decoding is not supported.
VO	Partially modified	The interfaces related to WBC and playback control are not supported.



Module Name	Difference Extent of Hi3516D V300 Compared with Hi3519A V100	Description
Fisheye	Partially modified	Only normal correction for fisheye cameras fixed on the wall is supported.
Region	Partially modified	The OSD in 2BPP format is supported.
VGS	Partially modified	The input format of VIDEO_FORMAT_TILE_64x16 is not supported.
Audio	Same	-
IVE	Partially modified	<ul style="list-style-type: none">• The interfaces related to ANN, SVM, and CNN are not supported.• The interfaces related to the PSP, HOG, and KCF operators are added.