



HiAI DDK V320

Acronyms and Abbreviations

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1 Acronyms and Abbreviations

Acronym/Abbreviation	Full Spelling	Definition
A		
AI	artificial intelligence	As an area of computer science, Artificial intelligence (AI) emphasizes the creation of intelligent machines that work and react like humans.
AIPP	artificial intelligence pre-processing	Artificial intelligence pre-processing (AIPP) pre-processes the input data for AI inference. Data adaptation can be achieved simply by configuring the AIPP parameters or calling the AIPP APIs in the software, sparing the trouble of retraining data to match the inference platform. With the dedicated hardware, considerable inference performance benefits can be yielded.
C		
CNN	convolutional neural network	A convolutional neural network (CNN) is a feedforward neural network that contains artificial neurons capable of responding to surrounding units and supports large-scale image processing.
CSC	color space conversion	It refers to image format conversion between YUV444 and RGB888.
D		
DDK	device development	A device development kit (DDK) provides APIs, libraries, and toolchains

Acronym/Abbreviation	Full Spelling	Definition
	t kit	required for AI development.
DL	deep learning	Deep learning (DL) is a branch of machine learning based on a set of algorithms that attempt to model high-level abstractions in data by using multiple processing layers, with complex structures or otherwise, composed of multiple non-linear transformations.
DTC	data type conversion	It refers to the conversion of each pixel value in an input image into the data type used for model training.
E		
ECC	error checking and correction	Error checking and correction (ECC) is a technique used for detecting and correcting errors by adding check bits to the source bits.
F		
FLOPS	floating-point operations per second	In computing, floating-point operations per second (FLOPS) is a measure of computer performance, useful in fields of scientific calculations that make heavy use of floating-point calculations. For such cases it is a more accurate measure than the generic instructions per second.
G		
GDB	GNU debugger	The GNU debugger (GDB) is a command line debugging tool in UNIX and UNIX-like, which can execute programs, manage breakpoints, and check values assigned to variables as well as call functions.
GE	graph engine	The Graph Engine (GE) provides the graph/operator Intermediate Representation (IR) for a set of secure and easy-to-use graph APIs. These APIs can be called to build a network model, and set graphs in the model, operators in the graph, and attributes

Acronym/Abbreviation	Full Spelling	Definition
		of the model and operators.
GPU	graphics processing unit	A graphics processing unit (GPU) is a specialized electronic circuit designed to rapidly manipulate and alter memory to accelerate the creation of images in a frame buffer intended for output to a display device.
I		
IDE	integrated development environment	An integrated development environment (IDE) is a software application that provides comprehensive facilities to computer programmers for software development.
IFU	instruction fetch unit	An instruction fetch unit (IFU) records the information about each access to the I-cache.
IR	intermediate representation	Intermediate representation (IR) refers to a dedicated network model, which consists of multiple single-operator models. The input of a single-operator model comes from the data and weight, as well as the output of other single operators.
J		
JNI	Java native interface	The JNI is a foreign function interface programming framework that enables Java code running in a Java virtual machine (JVM) to call and be called by native applications and libraries written in other languages
JPEGD	JPEG decoder	A JPEG decoder (JPEGD) decodes images in JPEG format.
JPEGE	JPEG encoder	A JPEG encoder (JPEGE) encodes and outputs images in JPEG format.
M		
ML	machine learning	Machine learning (ML) is the scientific study of algorithms and statistical

Acronym/Abbreviation	Full Spelling	Definition
		models that computer systems use to effectively perform a specific task without using explicit instructions, relying on patterns and inference instead.
MLL	machine learning library	A machine learning library (MLL) is a mechanical learning library that greatly improves the performance of the OpenCV operator through algorithm optimization and NEON instructions.
MTE1	memory transfer engine 1	Memory transfer engine 1 (MTE1) copies the memory from an L1 buffer.
MTE2	memory transfer engine 2	Memory transfer engine 2 (MTE2) copies the memory from a DDR SDRAM or an L2 buffer.
MTE3	memory transfer engine 3	Memory transfer engine 3 (MTE3) copies the memory from a UB.
N		
NN	neural network	In the field of machine learning and cognitive science, a neural network is a mathematical model or computing model that simulates the structure and functions of a biological neural network.
NPU	neural-network processing unit	A neural-network processing unit (NPU) uses the data-driven parallel computing architecture and is capable of efficiently processing massive video and image multimedia data. It is dedicated to processing a large number of computing tasks in artificial intelligence applications.
O		
OMG	offline model generator	The offline model generator (OMG) is used to convert models trained under frameworks such as Caffe/TensorFlow into offline models supported by

Acronym/Abbreviation	Full Spelling	Definition
		Huawei chips. During the conversion, you can implement operator scheduling optimization, weight data re-orchestration, compression, and memory usage optimization, thereby pre-processing a model without depending on the device.
OP	operator	An operator is a symbol that tells the compiler to perform specific mathematical or logical manipulations. Common operators include but are not limited to ReLU, CONV, FC, pooling, scale, and softmax of AI.
OS	operating system	Common operating systems (OSs) are Windows, macOS, Linux, iOS, and Android.
OTG	on-the-go	On-The-Go (OTG) is mainly used for the connections between different devices or mobile devices for data exchange.
P		
PMU	performance monitor unit	A performance monitor unit (PMU) is a hardware unit provided by the CPU, which can read some performance data of the CPU by accessing related registers.
S		
SDK	software development kit	A software development kit (SDK) refers to a set of software development tools for software engineers to create application software for specific software packages, software frames, and operating systems.
T		
TEE	trusted execution environment	A trusted execution environment (TEE) is a secure area of a main processor. It guarantees code and data loaded inside to be protected with respect to confidentiality and integrity. A TEE as

Acronym/Abbreviation	Full Spelling	Definition
		an isolated execution environment provides security features such as isolated execution, integrity of applications executing with the TEE, along with confidentiality of their assets.
TOPS	trillion operations per second	Trillion operations per second (TOPS) is a measure of computing capability of the CPU, GPU, and NPU.
TS	task scheduler	The task scheduler (TS) is used to distribute different kernels to the AI CPU or AI core for execution.
Y		
YUV	luminance-chrominance	YUV is a color encoding system typically used as part of a color image pipeline. It encodes a color image or video taking human perception into account, allowing reduced bandwidth for chrominance components. Dedicated nouns such as Y'UV, YUV, YCbCr, and YPbPr may all be referred to as YUV. Y stands for the luminance component (the brightness) and U and V are the chrominance (color) components. They are used to describe the color and saturation of an image and specify a pixel color.

2 Terminology and Conventions

Acronym/Abbreviation	Full Spelling	Definition
B		
BUILD	build	BUILD generates models supported by Huawei chips.
D		
DDK-VERSION	device development kit version	DDK version.
DTC	data type conversion	It is used to convert the pixel value in an input image into the data type used for model training.
H		
HIAI-VERSION	HiAI version	HiAI service version in the phone ROM
O		
OFFLINE-BUILD	offline-build	Offline-build refers to converting models trained under frameworks such as Caffe and TensorFlow into offline models supported by Huawei chips by using the Offline Model Generator (OMG) on a PC (Linux).
ONLINE-BUILD	online-build	Online-build refers to converting models trained under frameworks such as Caffe and TensorFlow into offline models supported by Huawei chips by using API functions provided by the DDK on devices

Acronym/Abbreviation	Full Spelling	Definition
		such as smartphones.