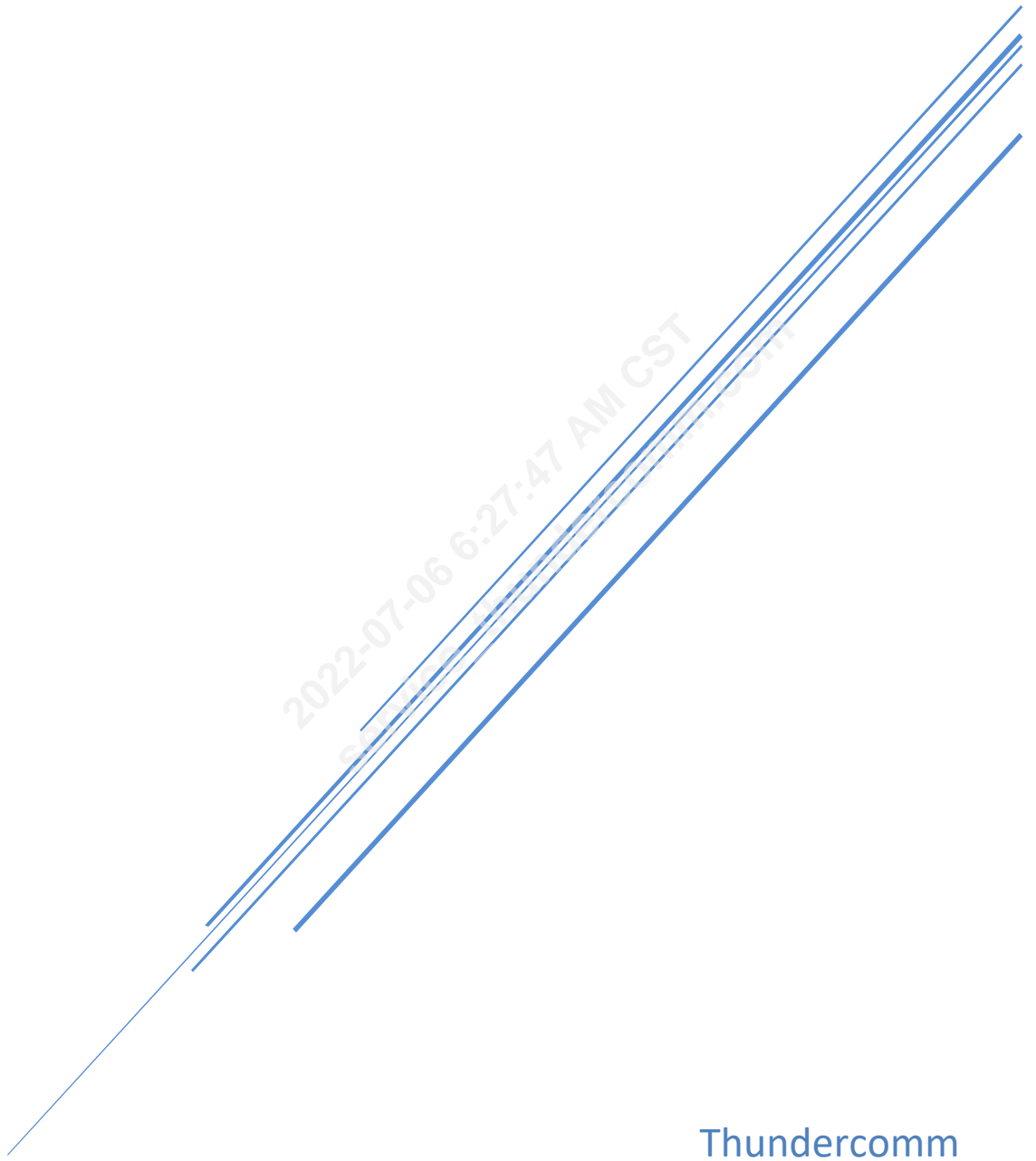



Thundercomm™ TurboX AI Kit

Start Guide




Thundercomm

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Version	Date	Description
V0.1	2018-09-18	Initial Version
V0.2	2018-12-05	Update forum website address, AI Kit hardware spec.
V0.3	2020-04-27	Update Documents download link and forum link
V0.4	2020-05-13	Update Documents download link and AI Kit software spec

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1 Introduction

1.1 Purpose

The purpose of this document is to provide user an overview of AI Kit and its usage. This document is the first document users should read. More documents are available on the website:

Download : <https://www.thundercomm.com/thundercomm-ai-kit-download.html>


1.2 Scope

This document provides specification of AI Kit and describes how to setup AI Kit when you use it for the first time, including:

- Overview of AI Kit
- Items in box
- Documents List
- Technical Support
- Hardware specification of AI Kit
- Software specification of AI Kit
- Setup method of AI Kit

1.3 Intended Audience

This document is intended for users who have purchased AI Kit and want to know how to use AI Kit and where to get technical support, especially for users who use AI Kit for the first time.

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2 Getting started with Thundercomm AI Kit

2.1 Overview

Thundercomm AI Kit aims to help developers to evaluate, verify and develop their on-device AI products with SDA845 AI platform, providing AI algorithm SDK, demo applications, tools and cloud service support.




This start guide will outline the steps to setup the Thundercomm AI Kit hardware. It documents the procedure to run an AI application on the Thundercomm AI Kit.

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3 What's Inside the Box?

- Thundercomm AI Kit
- Power supply
- TypeC to USB cable
- Quick start instruction card

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4 What's on the web

Thundercomm AI Kit's related documents and technical support can be found through the <https://www.thundercomm.com> website.

You can post your question and get technical support by sending email to service@thundercomm.com.

And you also can login to <https://www.thundercomm.com/forum/category/13/thundercomm-ai-kit> website to make technical discussions.

4.1 Official Documentation:

- Thundercomm AI Kit Start Guide

The document “Thundercomm AI Kit Start Guide” is the first document users should read, especially for users who use AI Kit for the first time. It provides user an overview of AI Kit and its usage.

- SNPE Development Guide

The document “SNPE Development Guide” is intended to provide algorithm developers with user information about how to program by SNPE. It describes how to obtain, use the Qualcomm® Neural Processing SDK, and program SDK software applicable to the AI Kit

- Thundersoft FaceSDK Programming Guide

The document “Thundersoft FaceSDK Programming Guide” is to provide application developers with user information for programming face image processing application using FaceSDK. It describes how to obtain, use the FaceSDK, and program FaceSDK software applicable to the AI Kit.


- Thundercomm AI Application Development Guide

The document “Thundercomm AI Application Development Guide” is intended to provide application developers with guide about how to develop applications on the AI Kit. It describes how applications access peripheral devices, such as usb camera, LED.


The above documents can be downloaded from the <https://www.thundercomm.com/thundercomm-ai-kit-download.html> website. Before you download documents, you need register on the website firstly.

4.2 Technical support

You can post your question and get technical support through the <https://www.thundercomm.com/forum/category/13/thundercomm-ai-kit>. Before you get technical support, you need register on the website firstly.

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5 Thundercomm AI Kit Product Specification

5.1 Hardware Specification

Module	Item	Spec
Computing	CPU	Qualcomm Snapdragon 845, 8x Qualcomm® Kryo™ 385 @ 2.8GHz
	GPU	Adreno 630 GPU
	DSP	Hexagon 685 DSP
	ISP	Qualcomm Spectra™ 280 image sensor processor
Memory	RAM	8GB LPDDR4X
	ROM	64GB UFS2.1
	SD Card	Support MicroSD Card
Camera	Built in Camera	8MP, FOV 120 degree
	external Camera	USB3.0 camera
Display	HDMI	1x Micro HDMI, 4k Ultra HD
	Type C	4k Ultra HD
Video	VPU	Support for HDR10, HLG, and H.265 (HEVC) 4k@60fps video capture
Audio	Speaker	1x speaker


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	Audio out	1x Headphone
	Microphone	1x microphone
Wireless Connectivity	WIFI	2.4G/5G,802.11 a/b/g/n/ac 2x2 MIMO
Wired Connectivity	USB	3x USB3.0 host, 1x 3.0 Type C
	Ethernet	1x GbE.
Debug Port	Micro USB	1x Micro USB (connecting to serial port for debug purpose)
Indicator	LED	RGB Led: Power status, WIFI status, Ethernet status;
Input	Buttons	Power key/ Volume up/down key/Camera snapshot key
Sensors	9-axi sensor	Gyroscope & accelerometer & geomagnetic sensor
Power	Power charging	12v DC

Table 5.1-1

5.2 Software Specification


Module	Feature
OS	Android O
AI Framework	Tensorflow, Caffe/Caffe2, ONNX,SNPE
AI Algorithm SDK	Face Detection & Face Recognition & Emotion Detection & Age Detection & Gender Detection algorithm
	Object Detection algorithm
AI Sample Application	Face Recognition & Emotion Detection & Age Detection & Gender Detection algorithm demo

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	Objection Detection algorithm demo
Camera	Support USB3.0 Camera, 1080p@30fps, Accessing USB camera with standard camera API in Android SDK
	Ultra HD camera preview, recording and snapshot
	RTSP Client
Graphic	OpenGL3.2, OpenCL2.0 full

Table 5.2-1

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6 Thundercomm AI Kit Basic Setup

6.1 Hardware Setup

- Plug in your 12V power supply into a wall outlet and then connect the power supply to your AI Kit. Your AI Kit should be powered down at this point.
- This AI Kit's preinstalled OS is android, there are two method to show AI Kit's android UI.

Method 1:

- 1) Plugin in your micro HDMI cable to your AI Kit and then connect the micro HDMI cable to your display screen with HDMI in interface. Note: Micro HDMI cable is not included in the AI kit but can be purchased separately.
- 2) Press power button for about five or six seconds and release. Then AI Kit will be powered on and start Android.
- 3) Then you can see Android UI from your display screen.

Method 2:

- 1) A terminal program is required on your computer.

If Ubuntu is on your computer, the terminal program "Vysor" can be used. Please download the latest version from Chrome application store or from the website

<http://www.vysor.io/download/?return=http%3A%2F%2Fwww.vysor.io%2F>

If Windows is on your computer, the terminal program "Total Control" can be used. You can download it from the website <http://tc.sigma-rt.com.cn/>


Install Vysor/Total Control or another terminal program of your choice.

- 2) Plugin in your typeC to USB cable to your AI Kit and then connect the typeC to USB cable to your computer.
 - 3) Then AI Kit will be powered on automatically and start Android.
 - 4) Start your terminal program on your computer. After android start on AI Kit is completed, Android UI can be showed on your terminal program.
- Connect usb mouse to your AI Kit and you can operate your AI Kit with the mouse. Note: USB mouse is not included in the AI kit but can be purchased separately.

6.2 Software Setup

WiFi Connection

Method of WiFi config as android's phone:

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After entering android's launcher UI, open "settings" to configure WIFI to connect wireless router.

You can try to access internet with browser to make sure wifi connection works well.

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