



# QuMagie 1.5.1

Empower AI capabilities of your QNAP  
NAS with Google Coral TPU

A large, stylized graphic of the letters "AI" in a bold, white, sans-serif font. The letters are centered within a circular, glowing purple and blue ring that has a particle-like texture. The background is dark blue with concentric circles and scattered light particles.

# AI

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# Agenda

1 | Introduction

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2 | User Story

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3 | How to use Google TPU  
with QNAP NAS

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4 | Recommended models

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5 | Where to buy



The background is a dark blue gradient with concentric circles and glowing particles. The letters 'AI' are large and white, centered on the left. A glowing purple ring orbits the 'AI' text. There are several small, stylized data visualizations: a bar chart with a red bar, a line graph with a red line, and a scatter plot with red dots. The overall aesthetic is futuristic and technological.

# AI

# Introduction

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# Google Edge TPU

- **What is Google Edge TPU**
- Google's purpose-built ASIC designed to run inference at the edge.



End-to-end AI  
infrastructure



High performance in a  
small physical and  
power footprint



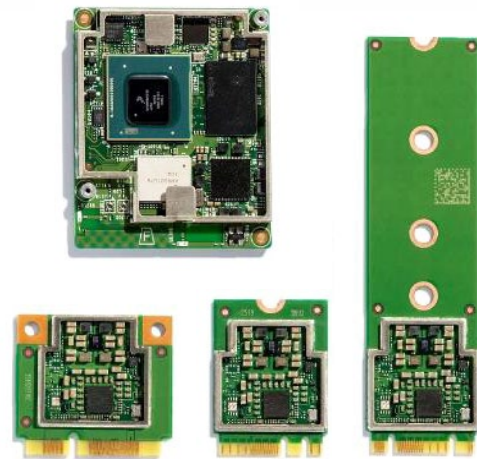
Co-design of AI hardware  
software and algorithms

# Google Edge TPU

Forms of Google Edge TPU

USB

M.2



# Google TPU USB Version Spec

Google Edge TPU ML accelerator

- 4 TOPS total peak performance (int8)
- 2 TOPS per watt

Integrated power management

65 mm x 30 mm form factor

USB 3.2 Gen 1 Type-C interface (data/power)

Package content:

- Google TPU USB version x1
- USB Type-C to Type-A cable, 300 mm
- Installation guide x 1



# Google TPU M.2 Version Spec

Google Edge TPU ML accelerator

- 4 TOPS total peak performance (int8)
- 2 TOPS per watt

Integrated power management

M.2 2280 (B+M key) form factor

PCIe Gen 2 x 1 interface

Package content:

- Google TPU M.2 version x1
- Heatsink x 1
- Installation guide x 1



# Where to Buy

## Coral web site

- <https://coral.ai/products>
  - ✓ M.2 version: <https://coral.ai/products/m2-accelerator-bm>
  - ✓ USB version: <https://coral.ai/products/accelerator>

## E-commercial web site

- <https://store.gravitylink.com/product/UsbAccelerator>

## QNAP Store

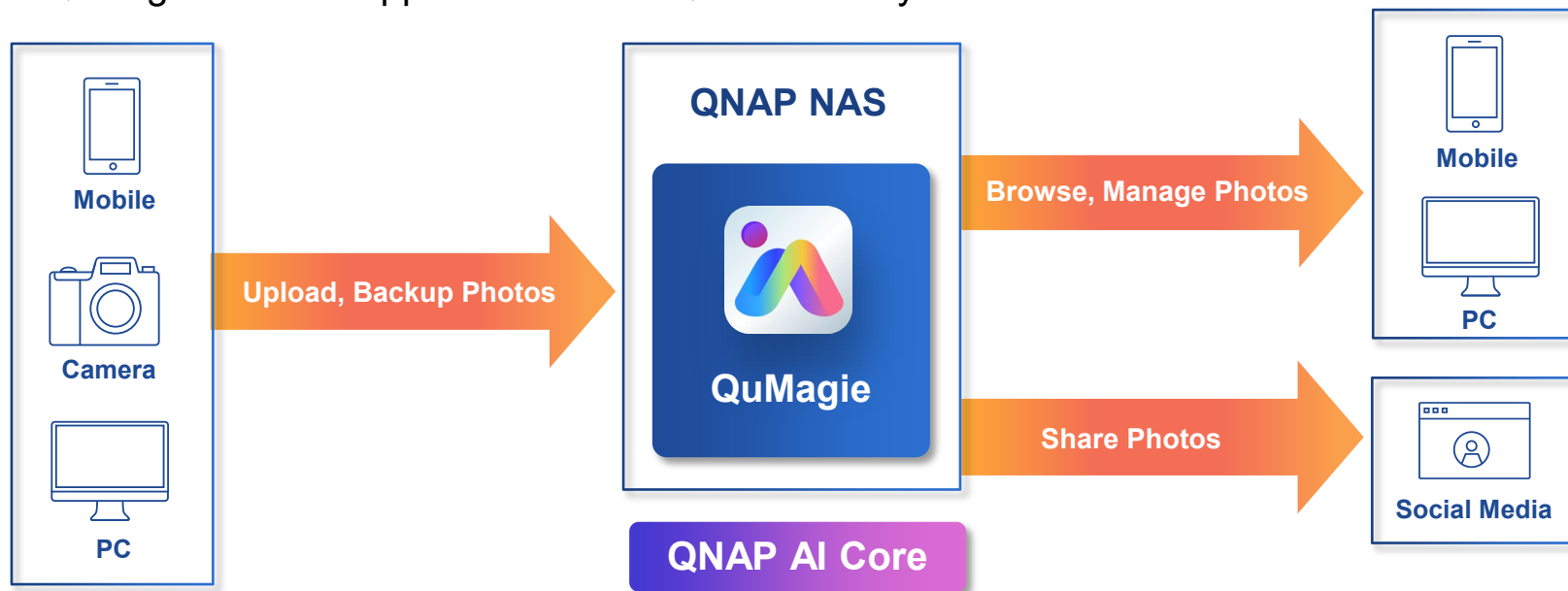
- [Contact your local QNAP https://store.qnap.com/](https://store.qnap.com/) & [shop.qnap.com](https://shop.qnap.com)
  - ✓ M.2 version (exclusive heatsink included): G650-04686-01-KIT
  - ✓ USB version: G950-06809-01-KIT



# QuMagie

## What is QuMagie?

- QuMagie is an AI-powered photo management solution with flexible storage space
- QuMagie is a free application within QNAP NAS system

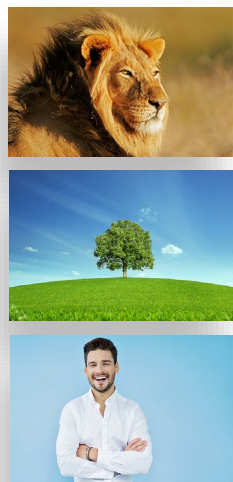


# QNAP AI Core

## What is QNAP AI Core?

The AI powered brain of QuMagie

Featured with face recognition and object classification



Face Recognition  
Object Classification



QNAP AI Core

Smart Albums



QuMagie



# QVR Face

**QVR Face helps you build a smart facial recognition system with just one NAS.**

- Real-time analytics with edge computing.
- Offers a database with 100,000 profiles (varies by model).
- Supports RTSP streaming cameras comprehensively.
- Supports TPU (from QVR Face Insight v1.3) & CPU analytics.
- Open API for integration of intelligent door access systems, member identification management, and smart retail applications.



2021/04/12 ~ 2021/04/12

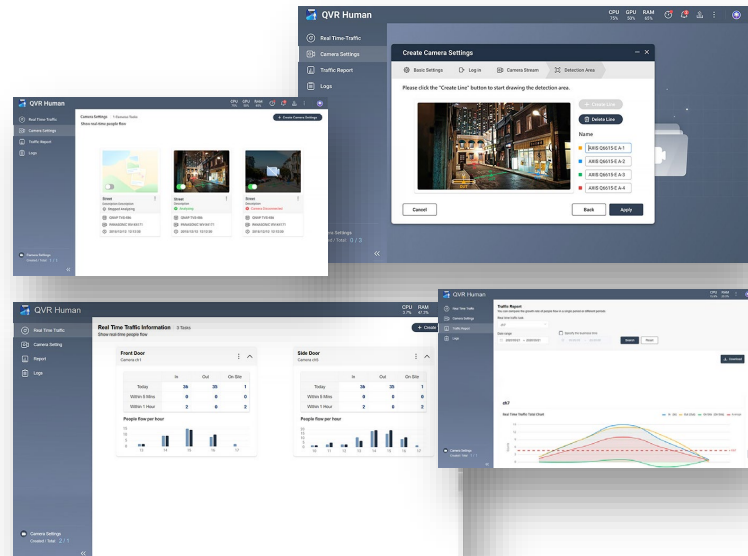
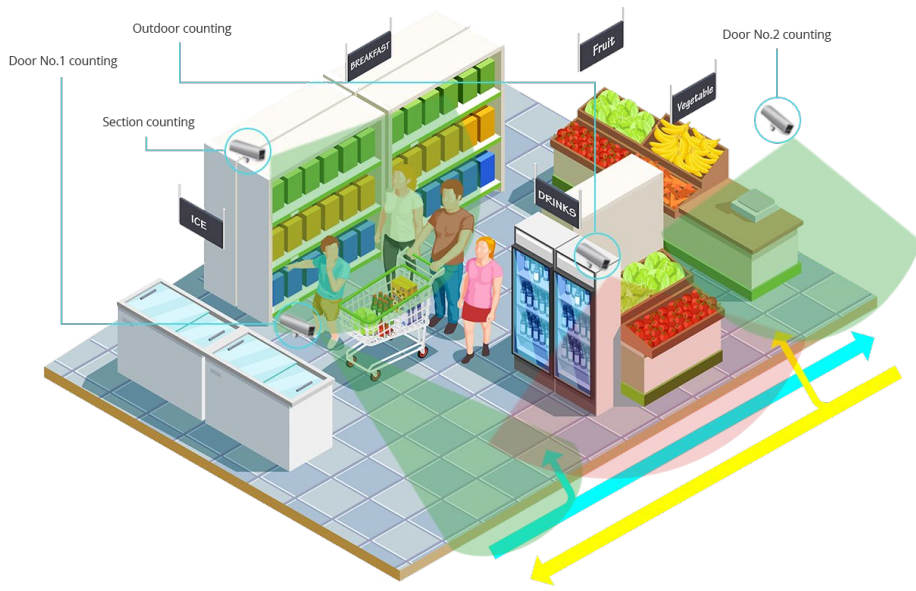
Number of people detected per hour

Registered people  
Unregistered people



# QVR Human

**QVR Human can count the number of people by detecting human bodies in specified areas. Third-party partners can create automated systems and innovative intelligent services via QNAP API integration.**





# User Story

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A futuristic graphic featuring the letters 'AI' in a bold, white, sans-serif font. The letters are centered within a circular field of glowing blue and purple particles. Two bright, glowing purple orbits, resembling planetary rings, encircle the 'AI' text. The background is a dark blue gradient with scattered light blue and purple bokeh effects. In the upper right, there are some faint, stylized binary code patterns. In the lower left, there is a small block of binary code.

AI

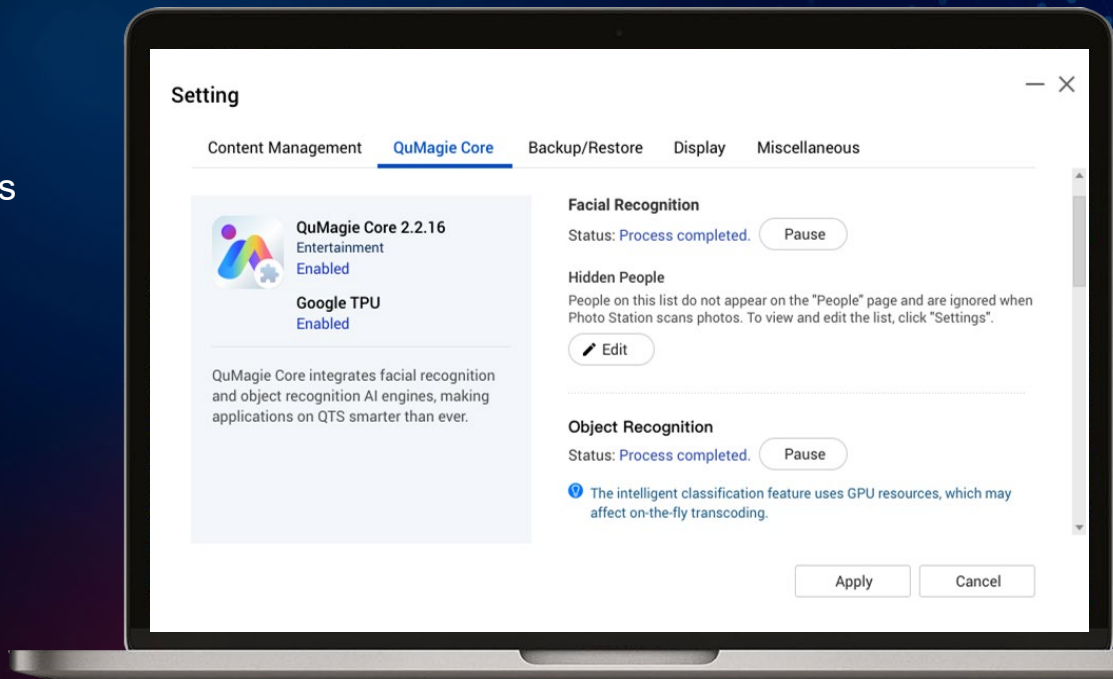
# Boost QuMagie's AI Performance

- **Target User**
- Photo Studios/Professional Photographers
- **Problem Faced**
- As a professional photographer, I would like to organize portrait photos of all my clients. I have a huge client base and numerous photos to automatically group and organize my photos. The time taken to perform Face Recognition will be massive and will consume my entire computer resources.



# Boost QuMagie's AI Performance

- **Solution**
- Boost the performance of QuMagie's Face Recognition engine using Google's Coral TPU
- The TPU supercharges QuMagie's other AI algorithms as well, thus freeing up system resources immediately for further usage



# Boost QuMagie's AI Performance

Statistic for QNAP NAS performing AI recognition tasks, comparison between the processing time span of TPU boosted NAS and NAS without TPU

D	Variable Name	Category	rule	TS-453D-4G
Suggested number of photo indexing	Suggested number of photo indexing	QuMagie	Testing & Results	Index - 60,000 /1 hr Thumbnail - 19,803 /1 hr
Speed of photo processing	Speed of photo processing	QuMagie	Testing & Results	Facial Recognition - 2,500 /1 hr Object Recognition - 2,400 /1 hr Similar Photo Recognition - 34,799 /1 hr
Speed of photo processing with TPU AI acceleration	Speed of photo processing	QuMagie	Testing & Results	Facial Recognition - xxx /1 hr Object Recognition - xxx /1 hr Similar Photo Recognition - xxx /1 hr

## 11 Times Boost!



A large, stylized graphic of the letters 'AI' in a light blue, sans-serif font. The letters are centered within a circular area filled with a dense field of small, glowing blue and purple dots. Two bright, glowing purple orbits, resembling planetary paths, swirl around the 'AI' text. The background is a dark blue gradient with concentric circles of dots and scattered light blue and purple bokeh effects.

AI

How to use Google  
TPU with QNAP NAS

# Minimum System Requirements

## The necessity for supporting Google TPU on QNAP NAS

- QTS v4.5.3
- QNAP AI Core v3.0.1
- Multimedia Console v1.4.0
- QuMagie v1.5.1
- QVR Face Insight v1.3.0



# QTS 4.5.3

Support Google TPU

IPv6 is supported to SNMP

Code signing validation for 3rd-party  
apps

and some enhancements

## QTS 4.5.2 official

Efficient Management × Flexible Virtualization × Modern  
Networking

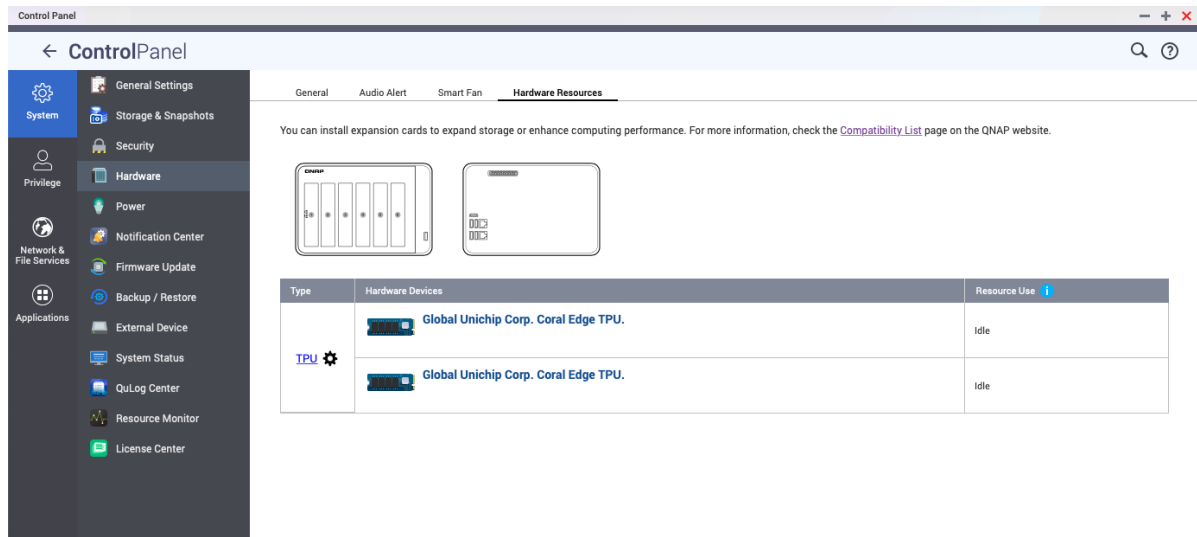
QTS 4.5.2 demonstrates QNAP's ongoing commitment to developing innovative and advanced NAS operating systems. Virtualization is greatly enhanced with the support for SR-IOV, Intel® QAT passthrough to virtual machines (VMs), and VM live migration. Networking is both strengthened and extended, including support for Wi-Fi 6. System management is also bolstered with the support for Azure AD DS and centralized log management. QNAP also debuts its ultra-high-speed 100GbE network expansion card that meets modern IT's eager demands for speed and storage.

# TPU Information in Hardware Settings




Display TPU information

Support multiple TPU devices

Assign priority of TPU applications



The screenshot shows the QNAP Control Panel interface. The left sidebar contains a menu with categories: System (General Settings, Storage & Snapshots, Security, Hardware, Power, Notification Center, Firmware Update, Backup / Restore, External Device, System Status, QuLog Center, Resource Monitor, License Center), Privilege, Network & File Services, and Applications. The main content area is titled 'ControlPanel' and has tabs for General, Audio Alert, Smart Fan, and Hardware Resources. The Hardware Resources tab is active, displaying a message: 'You can install expansion cards to expand storage or enhance computing performance. For more information, check the [Compatibility List](#) page on the QNAP website.' Below this message are two diagrams: one showing a QNAP expansion card slot and another showing a TPU card. A table below the diagrams lists the installed TPU devices.

Type	Hardware Devices	Resource Use
TPU 	 Global Unichip Corp. Coral Edge TPU.	Idle
	 Global Unichip Corp. Coral Edge TPU.	Idle



# Google TPU with QNAP NAS



**DEMO**

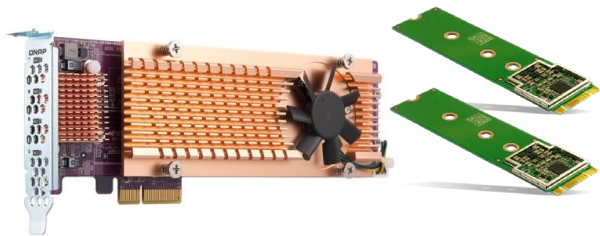
# Recommended Models

NAS with QM2 adapter

- TS-453D
- QM2

NAS with built-in M.2 slots

- TS-453E



**QNAP**

QM2-4S-240



QTS 4.5.3

X86 models

Linux kernel 4.14 at least

The background is a dark blue gradient with concentric circles and glowing particles. The letters 'AI' are in a large, bold, white font. A glowing purple and blue ring orbits around the letters. There are also some binary code elements (0s and 1s) scattered around the 'AI' text.

AI

Thank You

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