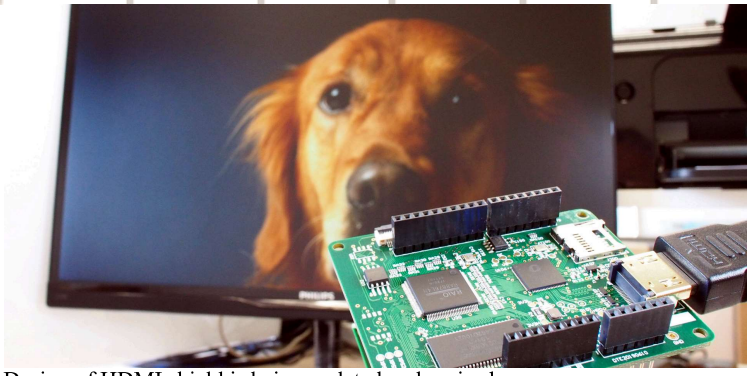


Design of HDMI shield is being updated and revised.

HDMI Shield for Arduino, mbed, & your MCU

HDMI Shield is an Arduino compatible development board to bridge the gap between small MCUs and High Definition Televisions (HDTV).
Small MCUs prevalent in prototyping systems like Arduino or mbed cannot output high-bandwidth video signal for HDTVs.
HDMI Shield do it in two steps:
(1) use an external LCD controller (RA8876) to generate RGB video signal. RA8876 supports multiple display buffers, picture-in-picture, 2D BitBlit engine, DMA transfer for images preloaded in Serial Flash, and font rendering from embedded character ROM.
RA8876 releases the burden of pixel-by-pixel drawing from a MCU.
The full TV frame is updated instantly with only few SPI commands.

(2) RGB video generated by RA8876 is fed to a HDMI encoder CH7035B. With its advanced scaling engine this chip boosts RGB signal in 8:8:8 to TMDS signal up to 1920*1080 @ 60Hz (1080p) output through HDMI/DVI interface.

HDMI shield in YouTube (link)

Application for a Ticket Display System.
Full description and source code
in GitHub (Ra8876_ticketdisplay_part1)

Board features:

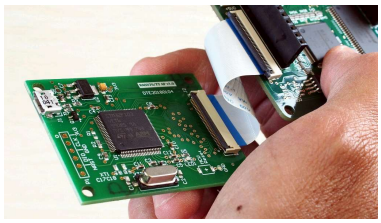
* Shield compatible with Arduino form factor for 3.3V systems
* LCD controller RA8876 generates RGB in 8:8:8 up to 1366*768
* HDMI encoder CH7035B with an advanced scaling engine to support 1080p@60Hz HDMI/DVI output
* Compatible with SPI, 8080, & 6800 interface with SPI as default for Arduino
* Onboard 256Mbit SDRAM for frame buffer equivalent to storage of more than 17 frames in 1280*720*16bit resolution
* HDMI Type A socket for direct connection to any HDTV or monitors
* 128Mbit Serial Flash (25Q128JVSQ) stores more than 7 pages of graphic assets in binary format, with single instruction to display images by DMA
* Include a STM32F103VET6 driver board with firmware preloaded for AP Software tool. This tool is used to control RA8876 and download image data to 128Mbit Serial Flash with a PC. But it is not restricted to use stm32.

Document & Software

Doc 01	Getting Started Guide for version 2 Document update 20190804	6.2 MB
Doc 02	Schematic for AP connections	28 KB
Doc 03	Pinout diagram for Arduino Form Factor	689 KB
Doc 04	Schematic of STM32F103VET6 AP board	35 KB
Doc 05	STM32F103VET6 USB Driver	285 KB
Doc 06	Schematic of Due Zipper Board	32 KB
Doc 07	Schematic of TeensyStacker board	20 KB
Doc 08	Arduino library on GitHub	
Doc 09	Full Schematic of HDMI Shield v2	114 KB
Doc 10	Ticket Display System with Arduino-Part I	4.00 MB
Doc 11	ESP32 IoT on HDMI monitor	4.80 MB

Ordering

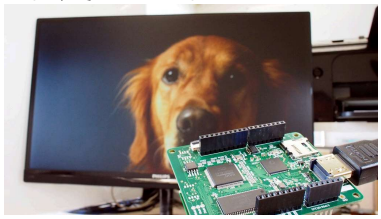
Item description	HDMI Shield development board - version 2
Part number	HDMIshield_DTE20190610 Packing list
Price	US$49.00
	*** Write email to us before placing an order (Covid-19)***
Freight charge	US$15-20 for registered air parcel** for all countries
	**Standard shipping method is registered air parcel
	Shipping time varies from 2-4 weeks
	email us to order if a faster service by EMS / DHL is required
Optional items	(1) Due Zipper Board with ESP8266 Wifi SoC
	Part #: DueZipper_DTE20171024
	Price:US$12.00
	(2) Teensy Stacker Board
	Part #: TeensyStacker_DTE20171030
	Price: US$4.00
	(3) Unitek 1m high quality HDMI cable
	Part #: Unitek Y-C136K
	Price: US$4.00



Connect the boards with 5cm 40pins FPC cable.

(Click thumb image to enlarge)

Displaying on a 1080p HDMI monitor below



Component used:
(1) HDMI Shield dev. board v2
(2) STM32F103VET6 driver board

(click thumb image to enlarge)

* Arduino library fully tested on ESP8266, ESP32, DUE, Arduino M0, Intel Genuino 101, and Teensy 3.2/3.5