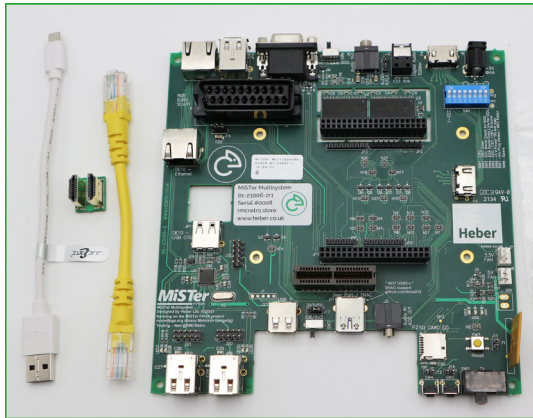


# Heber MiSTer Multisystem

The all in one MiSTer console motherboard - Analogue and Digital I/O, 7 port USB, 128MB SDRAM, SNAC, SCART and expansion connection for your DE10-nano in a low-profile Mini-ITX sized form factor.



## Multisystem

Designed and manufactured in the UK by Heber Ltd. – A company with 35 years of experience in the design and manufacture of Gaming, Arcade, Amusement, Consumer and Industrial electronics.

## Connectivity

Built using high quality connectors from JST, Molex, Harting, AMP, Amphenol, Wurth, TE, Toby etc.

RGB Euro SCART Output for SCART based CRT monitor support.

o Auto 4:3 / 16:9 selection on SCART output.

o Integrated RGB Scart sync – No need to enable c-sync in MiSTer INI files.

o Audio and RGB video output over a standard 21pin SCART-to-SCART cable.

o Digital HDMI and 'VGA' DE15 port for various analogue connectivity options.

## 3D Printed enclosure design

A 3D printed all-in-one enclosure reference design is available for further custom personalised designs - published under a Creative Commons CC-BY-SA Open-Source Commercial license.

o Example 'cartridge' module designs and demo projects for further enhancement.

o Easy access to the MiSTer Multisystem ports, power switch and micro SD card.



# Heber

## Key features

Compatible with existing MiSTer project cores and SNAC adaptors.

Integrated powered 7 port USB 2.0 Hub.

Integrated 128MB SDRAM.

Integrated Second Micro SD CARD slot.

Integrated Power switch / 4A power distribution / over voltage protection / over current protection and PTC thermal trip protection.

RGB Euro SCART connector for CRT monitor support and analogue video capture or processing.

DE15 Analogue 'VGA' Video port with Sync on Green (SOG) jumper and 5V.

Integrated SNAC support with on board level-shifters for classic game pad's and peripherals.

Optical digital Toslink audio out. 3.5mm Audio Out and 3.5mm Audio in.

On board fan connections, Reset button, front panel user and menu switches.

Integrated HDMI Isolation bank switches (CEC / I2C / Hot Plug / Power etc.)

# MiSTer

FPGA

## RMC Retro

The MiSTer Multisystem has been designed in collaboration with RMC Retro.

To purchase the Multisystem board set, deluxe package, expansion modules or peripherals, please visit -

<https://www.rmcretro.store>



## The Heber advantage

When you use a Heber product you benefit from:

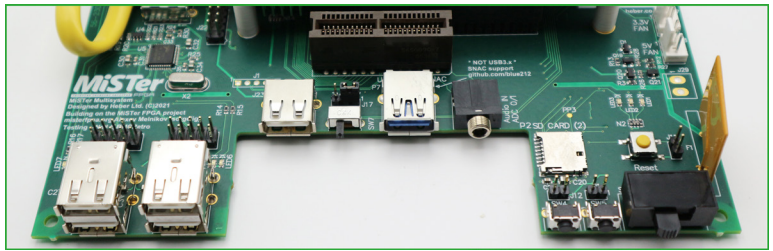
- Over 30 years of UK design and manufacturing products and systems for a wide range of industries and sectors
- Cost effective, reliable electronic systems
- Our team of dedicated specialist engineers and product support

Multisystem  
gaming to the core

# MiSTer Multisystem Technical Specification

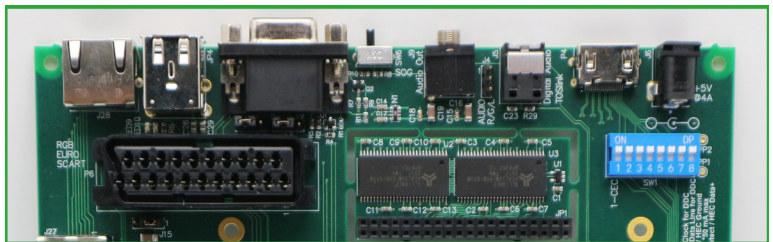
## Front panel connections

Easy access front panel connections include -  
 5 x USB2.0 connection ports for controllers, mass storage, WiFi, Bluetooth etc,  
 SNAC (Serial Native Accessory Converter) port selectable as User port or SNAC interface.  
 Analogue input for paddle controls or tape/line level connection.  
 2nd Micro SD card, User switch and OSD.  
 Main system power switch.



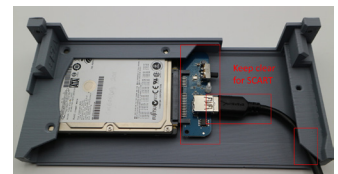
## Back panel connections

Ethernet, Dual USB2.0, DE15'VGA', SOG, Stereo analogue audio out. Optical Digital Audio out. HDMI Out  
 Power input (5V)  
 Onboard RGB Euro SCART 21pin - top or rear cable exit.



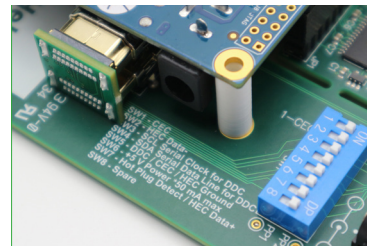
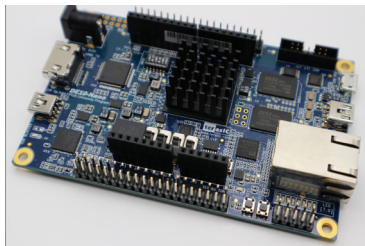
## Internal connections and options

USB 2.0 ports can be used internally with PC standard 5pin SIL connector cables.  
 Internal SSD/HDD, M2 mass storage memory via USB connection.  
 Multifunctional card edge expansion for future modules and AV / JAMMA / MIDI and controller options.



## Compatible with the DE10-nano

The Multisystem is designed to be compatible with the Terasic DE10-nano FPGA evaluation board module.  
 Isolation of some HDMI signals may be required for some digital equipment / displays or port switcher - please see SW1 switch options for CEC, HEC, Power and Hot plug detect etc.



## MiSTer FPGA Project

The Multisystem is designed to be compatible with the MiSTer FPGA project and a wide selection of FPGA 'Cores' as of 1st September 2021 - Onwards.

For more information about the MiSTer FPGA project and to help support the developers and community, please visit - <https://misterfpga.org>

The lead MiSTer designer is Alexey Melnikov, he has developed both the open-source hardware and operating system running on MiSTer. You can support Alexey and the many of the FPGA core developers via Patreon, links can be found via the dedicated support forum for the MiSTer FPGA project. - <https://www.patreon.com/FPGAMiSTer>

The MiSTer project can also be explored via the Wiki - [https://github.com/MiSTer-devel/Main\\_MiSTer/wiki](https://github.com/MiSTer-devel/Main_MiSTer/wiki)

## Controls and Activity Indicators

Reset, User and OSD menu buttons

Internal USB LEDs, Power, Disk and User

## Power Supply - Single voltage 5V

MEAN WELL 4A 5V (20w) power supply is recommended for use with the Multisystem - Part number GST25A05-P1J

## Temperature and Operation

Recommended ambient temperature 45 Degrees C max.

DE10-nano heatsink recommended.

Optional 30mm x 10mm 5V fan is recommended when using reference design enclosure. 3.3v or 5V operation.

## Dimensions - Multisystem PCB

170mm x 170mm with 4 x 3mm screw mounting points.

## 3D Printed Reference enclosure

203mm x 177mm x 50mm. 4 x 20mm M3 fixing screws required for lid.

## Heber Ltd. 2023

Belvedere Mill, Chalford,  
 Stroud, GL6 8NS, United Kingdom

Precise specifications may change without prior notice. E&OE.

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Datasheet 80-23043-2 [www.heber.co.uk](http://www.heber.co.uk)

