

Christie[®] MicroTiles[™]

Technical Frequently Asked Questions (FAQs)

December 11, 2009



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FAQs

1 Size and physical installation

1.1 How many tiles will I need to fit a physical space?

Simply visit www.microtiles.com and enter the physical dimensions of your space in the MicroTiles Calculator. Alternatively, you can download and use the MicroTiles Designer software to determine how many tiles you will need.

1.2 What is the maximum size of a Christie MicroTiles display?

Up to 1024 tiles can be connected together and function as a single display. It is possible to build an even larger display, but each section of up to 1024 tiles must be controlled and calibrated by a separate group of External Control Units (ECUs).

1.3 How much room should I leave around the tiles?

A minimum gap of 50mm (2") is required behind the tiles for air flow and cabling. However, in order to ensure that the air behind each tile is within the operating range of 5-40°C (41-104°F), large displays may require additional depth.

1.4 Do Christie MicroTiles require any additional mounting support?

Each tile contains a sturdy metal housing that is capable of supporting the weight of four additional tiles. This allows you to build standalone displays up to five tiles high, so long as the display is adequately ballasted and secured to prevent tipping.

When building a display more than five tiles high, the weight of each tile above five high must be transferred to a separate supporting structure. Christie offers a mounting bracket which attaches to the rear of the tile, enabling it to be mounted to a support structure.

For more information on how to install and mount Christie MicroTiles, refer to the User Guide available at www.microtiles.com

1.5 Can you suspend or fly Christie MicroTiles from rigging?

Yes. In this situation, a bracket should be used on every tile.

1.6 Can Christie MicroTiles be mounted on angle, in the floor or on a ceiling?

Christie MicroTiles can be mounted in a variety of orientations, but there are some limitations.

Angle-mounting: Brackets can be attached to each tile to allow angle-mounting. Up to 20° from vertical is supported at this time.

Floor-mounting (facing up): This is supported; however, the tiles cannot bear any weight in this orientation.

Ceiling-mounting (facing down): Not supported at this time.

2 Resolution and playback

2.1 What is the resolution of Christie MicroTiles?

With Christie MicroTiles, you can achieve practically any resolution simply by adjusting the number of ECUs connected to the tiles. The more ECUs, the greater your displayed resolution can be, up to a maximum of 720 x 540 pixels per tile (native resolution).

The following table shows the maximum displayed resolution that can be achieved with some example display sizes.

Example displays:		81 tiles (9 wide x 9 high) 10.1 sq. m. (108.9 sq. ft) 4:3 aspect ratio			48 tiles (8 wide x 6 high) 6.0 sq. m. (64.5 sq. ft) 16:9 aspect ratio		
ECUs	Megapixels at 60Hz	Maximum Resolution	Pixel Pitch (mm)	Tiles per ECU	Maximum Resolution	Pixel Pitch (mm)	Tiles per ECU
1	2.62	1868 x 1401	1.97	81.0	2157 x 1213	1.51	48.0
2	5.23	2642 x 1981	1.39	40.5	3051 x 1716	1.07	24.0
3	7.85	3236 x 2427	1.13	27.0	3737 x 2102	0.87	16.0
4	10.47	3737 x 2802	0.98	20.3	4315 x 2427	0.76	12.0
5	13.09	4178 x 3133	0.88	16.2	4824 x 2713	0.68	9.6
6	15.71	4577 x 3432	0.80	13.5	5285 x 2972	0.62	8.0
7	18.33	4944 x 3708	0.74	11.6	5708 x 3210	0.57	6.9
8	20.94	5285 x 3963	0.69	10.1	5760 x 3240	0.57	6.0
9	23.57	5606 x 4204	0.66	9.0			
10	26.18	5909 x 4431	0.62	8.1			
11	28.80	6197 x 4647	0.59	7.4			
12	31.42	6473 x 4854	0.57	6.8			
13	31.49	6480 x 4860	0.57	6.2			

A useful rule of thumb is that one ECU can support a 1mm pixel pitch on 20 tiles at 60 Hz.

Don't stress about how many ECUs you will need. Go to www.microtiles.com and enter the display size and resolution you desire in the MicroTiles Calculator. The MicroTiles Calculator will figure out your ECU requirements.

2.2 How many ECUs are required to support native resolution on Christie MicroTiles?

As shown in the chart above, the rule of thumb is that one ECU can control up to 6 tiles at native resolution at 60Hz.

2.3 How many tiles can be driven by one ECU?

One ECU can drive several hundred tiles. However, for most practical applications, it is expected that a ratio of between 6-30 tiles per ECU will be typical.

2.4 Do you support any other input besides DVI?

Single-link DVI is the only input supported at this time.

2.5 Will Christie MicroTiles work with any media player or digital signage software provider?

Christie MicroTiles have been tested successfully with a wide range of media players and digital signage software providers. However, non-standard resolutions should always be tested on your desired media player and software.

2.6 Do you support higher refresh rates for smoother playback?

Unlike flat panel LCD and plasma technologies, the DLP® technology inside Christie MicroTiles does not require extremely high frame rates, such as 120Hz or 240Hz, for smooth playback.

Video playback on Christie MicroTiles is very smooth, and is frame-locked for sources running at 47-63Hz. If content is supplied outside of this range, Christie MicroTiles will automatically adjust it for optimal presentation on the tiles.

3 Control and calibration

3.1 How many ECUs can be connected in one loop?

Up to 128 ECUs can be connected to control a single Christie MicroTiles display.

3.2 How far away from the display can the ECU be located?

Each ECU ships with a 3m (9.8 ft) DisplayPort cable. If necessary, longer DisplayPort cables may be used, up to 7m (23.0 ft).

3.3 How are the tiles calibrated for x/y geometric alignment?

Christie MicroTiles use an 800x600 DLP® chip inside each tile. During the production process, each tile is calibrated through software so that the displayed image is geometrically aligned to the corners of the screen. To achieve this, 10% of the pixels are sacrificed, resulting in a native resolution of 720x540.

3.4 How does the color calibration work?

The light engine inside each tile contains three LEDs: red, green and blue. Sensors inside the light engine continuously monitor the temperature and maximum light output of each LED. Using this information, the ECU is able to make adjustments to the color space and brightness of each individual tile, so that the entire display is always matched.

4 Power and brightness

4.1 What is the power consumption of Christie MicroTiles?

At full brightness, the typical consumption of each tile is 110W. However, in an array with color and brightness matching enabled, actual power consumption at full brightness may be up to 30% lower, i.e., down to 75W.

The brightness level of Christie MicroTiles may be higher than needed in some environments or at certain times of day. In these situations, reducing the brightness of the Christie MicroTiles array will also reduce the power consumption by up to 60%.

5 Specifications

5.1 What is a nit?

A nit is a unit of measure for luminance or brightness, equal to one candela per square meter.

5.2 What is the expected lifetime of Christie MicroTiles?

The internal components of Christie MicroTiles are extremely long-lasting and reliable. The Christie MicroTiles light engine is driven by solid state LEDs rated by the manufacturer for 65,000 hours to half brightness. Ultimately, when a component needs repairing or replacing, each tile contains three serviceable parts – light engine, fans, power supply – which can be changed in less than 15 minutes from the front by removing the screen.

5.3 How does the contrast ratio of Christie MicroTiles compare to current technologies?

Christie MicroTiles offer extremely high contrast, with brilliant whites and deep blacks. Unfortunately, consumer display manufacturers currently use several different methods of measuring contrast ratios, some resulting in extremely high numbers such as 3,000,000:1, making it very difficult and confusing for consumers and even professional buyers to compare different products. As a result, the only way to compare products is to see them side by side.

5.4 What is the viewing angle of Christie MicroTiles?

Christie MicroTiles offer a viewable image up to 180° and much less color shift than most alternative technologies. However, similar to contrast ratios (see previous), the display industry uses different methods of measuring viewing angles, and the only realistic way to compare products is to see them for yourself.