# Software Release Notes

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| Product: | Matrix G2 |
| Project Name: | Matrix |
| Part numbers: | 010-1409 |
| Version: | 09 B |
| Date: | 05/15/2017 |
| ECO # | 1008427 |

# Reason for Release

This release is to fix improve support for long cable runs, and makes final changes in order to support MX46HDX.

# New Features

* Increases the panel timeout value from 40ms to 100ms allowing for the longer read/writes to the EEPROM on the new panel interface board.
* Reduces the color depth to 8bits when the quad cannot detect a panel in order to establish a connection if a long CAT6 cable is being used.

# Resolved Defects

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| 16698 | Flashing fw rev 09 on the matrix g2 quad will only flash the primary cpu and not any of the others. | Fixed bug in code causing the revision number to be interpreted as an octal rather than a base 10 number. |
| 15773 | Output color depth set to 12 bit cause detection problem in long reach mode | If a quad has a vs100 valens part and it cannot detect a valens rx it lowers the color depth to 8bits. |
| 15802 | Displays won't turn on after power cycling | The MX46HDX panel will not display video when framelock is enabled. This release disables framelock when powering on a panel, then enables framelocking after ~8seconds allowing the panel to fully power up. |

# Known Defects

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| 1310 | Clone Fails if done a second time | If you did an update flash operation, and then did it a second time before power cycling the quad, that operation would fail. The cloning operation now retries each processor up to 3 times if there was an error in the download. Hopefully this will help with the occasional clone failure we have been seeing. |
| 923 | Spread the 3840x2160@30Hz over its Quad will cause bandwidth issue. | If I big picture 3840x2160@30HZ and spread the whole wall, it will display fine. However, When I tried to spread within 2x2 for native resolutions by using Quick Configure - spread over its Quad button, it will run into bandwidth limitation since it enabled 10 bits and native resolution. This is the limiation of PW318 and can't support it. When it happened, you will run into alot of issues where OSD data overflow. slow response, image hopping, and etc.    We need to patch the firmware so that it won't enable 10 bits where it's in spread over its Quad mode. we might need to look into other modes such 1920x2160,1920x3240, and etc where native resolutions really kick in. |

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| 920 | Not detect resolution correctly when Orbiter enabled and resolution 3840x1080@30Hz | There is a flaw in the FPGA when the orbiter is turned on and the image is greater than 2048 pixels wide. The workaround is to turn the orbiter off (the default) when working with such “hyperresolution” signals. |

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| 791 | Previous key sometimes erroneously shows the Picture Setup menu | On a 3x3 wall, if you open the Picture Setup menu and then press previous, the Picture Setup menu remains on some of the tiles but not all of them. Hitting previous a few more times gets rid of it. Pressing previous with other menus open also sometimes causes the Picture Setup menu to appear briefly on some tiles. This was first reported in bug #672, but that was a different issue with this menu which has now been resolved. |
| 747 | Matrix G2 sometime detect only half of the image after I disconnect and reconnect the source. | I ran into this bug again when I setup the 3x3 wall with 4K input big picture. I saw it twice with DVT build. When I remove the source and plug into a 2nd computer, the C2 and C3 image shifted. See attached. I tried clear it by click on "hybidresolution" hope it corrects itself. It didn't help. I ended up change to another input( no source) and come back and it corrected itself.     Look to me the Big Picture scaler didn't setup the image correctly. It required to change source to trigger re-setup big-picture. it's strange it is on C2 and C3 but it's okay on C1 and C4. I guess it could be get a wrong information when the source is still not stable.    Will see I can find a way to re-produce so we can zero in the issue. |

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| 688 | Reset Window to Defaults can only be done on A1 |  |

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| 678 | AMX serial commands status poller caused displays random flicker. | If you setup a 3x3 wall and connect AMX with serial commands polling, you will notice random display will flicker. It's no enough to cause the image to go into source absent. but it's enough to cause image distortion if you you look at the wall all day.    initial debug, the one command string seem to cause it "opA1matrix.route.qconfig(0)?" What is strange that string will cause flicker only you set period repeat at 1 sec. It won't happen when set to 0.5 or 2 sec interval. It feel like something else cause the flicker but not sure why that string will make it happen more often.    need someone investigate further. |
| 639 | 1920x2160@60Hz can't handle one to one configuration | It's a known not support mode on both Matrix and Matrix 2. it won't display correctly due to the clock excess 165Mhz with column configuration. you will only see first half of the screen. It mode is not support by design due to hardware limiation. I just log it so we track it. It mode is useful with 4K UltraRes with multi Displayport inputs. Since Matrix has only one Displayport input, It become less use unless you want it will 2 Quad box.    Alternate mode will be 1920x2160@#30Hz. If you want to run 4K@60HZ with 2 Quads, you will have drive a 3840x1080p mode to get it. Matrix 2 support it |
| 635 | Matrix 1, with 480p resolution, It display fine on main Quad box but it shows no loopout. | With both 480i and 480p modes, the signal somehow won't loopout to the DVI dual-link port. It works fine anything above VGA resolution and up to 4K resolution. I verified older FPGA firmware, old FGPA firmware worked with 480i and 480p. |
| 619 | DisplayPort input is not display correctly with 10bit 4:2:2 YCbCr | Displayport input with 8 bits depth color, It will display fine for RGB and YCbCr 4:4:4 and 4:2:2. However, if you set to 10 bits, all other display modes setup and display fine except 10 bits 4:2:2 YCbCr. failed on "Red" which cause image blueish.    Since Displayport is not really support 10 bits 4:2:2 YCbCr, we will remove the YCbCr 4:2:2 from the EDID for now. It can still display 4:2:2 YCbCr at 8 bits. we just won't listed in EDID so it won't cause problem with some devices.    This bug will affect Matrix 2, Mosaic, UltraRes, and Extensity since all are use the same Displayport chip. |

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| 611 | 1080p image hopping when scaled 2 high 1 wide | This is a bandwidth limitation of the scaler chip. We are allowing 10bpp on any scaled image but not 1 to 1 for 1080p. This was determined empirically. Now we find that at 2high 1 wide there is a hop in the video (about 3x per minute) unless you force 8bpp (uncheck allow 10 Bits per Color in the Miscellaneous menu) |
| 453 | Display Port Image flickering during HDCP playback | During playbackof a blu-ray disc with an AMD video card, the flickers. It plays normally with Nivida K5000 card |

# Download Instructions

The FlashUpgrader program from Pixelworks is included in the release .zip. Using the RS-232 port on the Quad Output controller, use FlashUpgrader to download the first processor in the Quad Output Controller. This release requires an FPGA update which is an extra file (FPGA.hex) to be downloaded. In order to download this file, use the (included) SDKandFPGA.inf file instead of pwsdk.inf.

After the firmware downloads, it will automatically start programming the FPGA. During this time, you will see an alternating pattern of green lights around the circle of LEDs on the front panel. Programming the FPGA will take about 8 minutes.

Once the firmware is in the first processor, it must be copied to the other 3 processors on the board. There are 2 ways to do this:

## Flash Update in the field (if installed in a module)

If you have upgraded to a new version number, eg. 03 to 04, be sure to upgrade the A Quad Controller last. Whenever the A quad controller starts up, it will query the version number of all the other processors. If any do not match, it will command that quad controller to copy the firmware from processor 1 to processors 2,3 and 4.

If automatic cloning fails, you can do it manually:

( Note that you must have an LCD attached to output 1 of module A to see a menu). From the factory menu select Update Flash. This will cause all Quad Controller modules that are linked together to start the clone process.

-OR-

From a serial controller, use the command “op \*\* Update=0”. Using an address of \*\* will cause all connected modules to clone. Use A1 (or B1, C1 etc) to direct the command to a particular module.

## Flash Update in the Factory (or benchtop)

If the Quad Output controller is not yet installed in a box, place a jumper on the middle row of JP3. Power cycle the unit. When it powers on, the first processor will copy the contents of its Flash ROM into each of the other 3 processors. This will take about 20 minutes. If you have a status board attached, you will see the 4 LEDs on the “out” column slowly changing from green to red and back. The processor that it is currently being cloned will be the opposite color from the other 3 LEDs in the column. Be sure to remove the jumper for normal operation.

JP3

# Identification

This version can be identified through various means:

## Program Information Menu

Matrix

Rev 09

Code Generated Date: May 15 2017 at 11:39:42

# Revision History

|  |  |  |
| --- | --- | --- |
| Rev | Date | Major Features |
| 00 |  | Initial Release |
| 01 | 11/8/2013 | First customer ship--10bpp, Sample Point, Bug fixes |
| 02 | 4/15/2014 | Fixes for LX46S3D panels and MX44HDU panels. Vertical resolutions from 400 to 2448 |
| 03 |  | Change framelock mode back to nearest line for Samsung panels |
| 04 | 02/03/2014 | long reach mode. New panel types. |
| 05 | 07/16/15 | Custom lookup tables for 3D panels. |
| 06 | 05/10/2016 | Add MX55HDX and LX46HDU3D. New EDID |
| 07 | 07/27/2016 | Color temperature for MX55HDX. Crosstalk test pattern |
| 08 | 02/2017 | Add MX46HDX, LX55HDX and LX55HDX\_M |
| 09 | 04/2017 | Improves support for long cable runs, and makes final changes in order to support MX46HDX. |
| 09 B | 05/2017 | Fixes RM 16698 |