Software Release Notes

Product:	Matrix G2
Project Name:	Matrix
Part numbers:	010-1409
Version:	06
Date:	5/09/2015
ECO #	

Reason for Release

This release is to support two new panels and fix some specific customer problems

New Features

New Panels

Two new panel types were added to the PANEL.SELECT command. MX55HDX and LX46HDU3D. At present the software does not treat these panels any differently from MX55HDU.

New EDID

The EDIDs were tweaked in order to solve several customer issues. The DisplayPort input EDID is now distinct from the HDMI input. Detailed Timing 1 of each can be customized via menu. The software no longer allows Detailed Timing 2 to be customized.

EDID Changes:

- Manufacture Week and Year (This will indicate new EDID)
- Color Characteristics
- Remove YCBCR indicator for DP; the DisplayPort receiver does not properly handle YCbCr.
- Image Size
- Established Timings
- Standard Timings
- Monitor Descriptor Data
- CEA-861. Change detailed timings and remove non-standard modes.
- Add HDMI VSDB to DP so it works with Lindy adapter
- Add VSDB 4K Video Format ID and Short Video Descriptors

Cyviz Logo

A custom logo for Cyviz has been added. It can be selected on the Factory menu.

Resolved Defects

2724	Framelock setting is not broadcast to other nodes until menu is closed.	When debugging issues, it was inconvenient and confusing to turn Allow Framelock off or on because only A1 would get the change until the menu was closed. Now the setting is broadcast to all other displays when set. If FRAMELOCK.ENABLE is set via serial command to A1, it will also be broadcast to the other displays
2725	ascii response is not returning back to symbolic property	There is some confusion about setting the ascii.response which probably stems from the fact that setting it in the menu only set it for the A1 module. The software now broadcasts the asci.response setting to all modules when it is set at A1 (either by the menu or serially).

Known Defects

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

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.

		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.	
619	DisplayPort input is not display correctly with 10bit 4:2:2 YCbCr	This bug will affect Matrix 2, Mosaic, UltraRes, and Extensity since all are use the same Displayport chip.	
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.
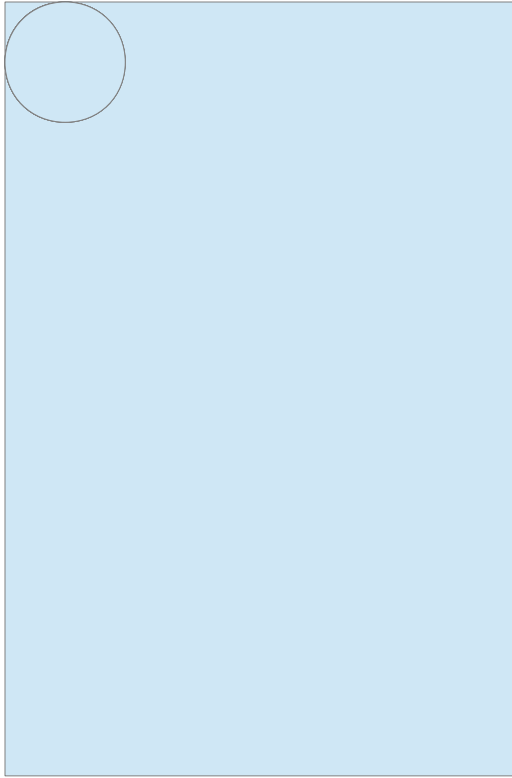
Identification

This version can be identified through various means:

Program Information Menu

Matrix
Rev 06
Code Generated Date: May 24, 2016 at xx:xx:xx

Source Safe Project	$/Pixelworks Based Projects/318 -1168 SNB
Current Source Safe Label	1409-06 Matrix 2 RC 5
Previous Label	1409-05 Matrix 2 RC 5

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