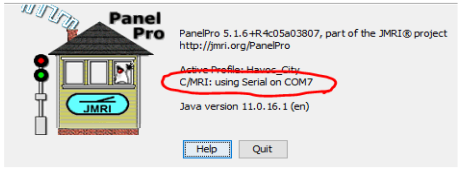
Test No	Area under test	Test Code	Rev	Physical Parts Needed	Connections	Steps	Expected Outcome	Comments
1	Neopixel	MaxDuino_Onboard_NeoBlink.ino		none	none	Load Sketch	on board Neopixel will cycle Red-Green-Blue	NeoPixel is on pin D4 and is always index [0] in a Fastled array.
2	IO Header Pins	MaxDuino_IO_Check		A 3 wire sensor with 3 pin dupont header in pin order of S-V-G	plug in sensor observing pin order	By activating a one pin at a time the on board neopixel should change colour.	The NeoPixel will display a different colour for each pin activated. A6/A7 and D13 are not tested.	The purpose is only to test if the header pins are working. Plug in an external NeoPixel string to header pins D4 to test it.
3	I2C	Maxduino_I2C_check_OLED_128x32		128x32 OLED display F-F Dupont jumper wire (Qty 4)	Connect display to I2C header, matching the 4 pins	Load Sketch	Display will cycle through some tests under control of the sketch.	I2C OLED displays normally have an I2C address of 0x3C or 0x3D
4	MP3	MaxDuino_MP3_Sound_Check.ino		Small 8 ohm speaker micro sD card with mp3 folder containing mp3 sound tracks	speaker connected to the speaker terminals	Load Sketch	A sound track should play upon power up. The "play next" command is issued every 6 seconds.	play order is determined by time stamp of file copy, NOT the file name or visible file time stamp.
5	RS-485	MaxDuino_RS485_MP3		USB to RS485 converter. Pair of wires for RS485 comms A&B USB Cable for Arduino Computer running JMRI	Use a pair of wires to connect the RS485 USB converter to the MaxDuino (matching the A and B terminals). Connect the USB converter to the PC. If only these two RS485 devices are involved enabling R7 is not necessary.	Establish a connection from JMRI to USB converter so that it becomes available to JMRI. (See Screen shot below) The CMRI node in Arduino test code is only listening on address 0 therefore in the lights table (1) define 'lights' for CMRI addresses 1 => 7 and define sensors in the sensors table also on addresses 1-7	Bits 1 to 7 being toggled in JMRI/CMRI will be read by the Arduino which will cause lights 1-7 to follow the status. (loop back). The on board NeoPixel will change according to the highest bit that is set.	This test shows a minimum of functionality as a proof of operation of RS485.
6	DCC Decoder	MaxDuino_DCC_Decoder		Jumper wires to power the MaxDuino from DCC	DCC Power to the power input connections on MaxDuino. Note: The use of a heat sink on the 5 Volt regulator (Part 7805) is highly reccomended.	Load the sketch Connect MaxDuino to a DCC source. (Leave unpowered). Initially nothing is being decoded as MaxDuino is unpowered. Apply power to the module from a DCC supply. .	The serial monitor (@19.2K) will show accessory commands as they are received. The Arduino is listening for any accessory address less than 400	This test shows DCC decodimg for a wide range of addresses. In practice the sketch would respond to only a small number of addresses.

Test #5 - JMRI showing a CMRI connection to the USB / RS485 adaptor



Test #5 - In the lights table (1)
Add a series of lights at addresses 1 through 7 (2)
Toggle the bits using the buttons (3).
The sensors table should update reflecting the current light status.