Understanding the JAMMA PCB and Edge Connector Pinout

By R. Steve McCollum

First, here is a little history behind the meaning of the acronym, *JAMMA*.

Back in the dark ages of the Golden Era of arcade video games (1984 and earlier), game manufacturers operated in exclusive little domains where they designed game components in a way that best served their own interests.

Consequently, they each had their own proprietary circuit boards, power supplies, and wiring harnesses. There was essentially no interchangeability of components between one manufacturer's game cabinet and a game cabinet made by someone else.

Thanks to the Japanese, around 1985, all of that exclusivity was soundly laid to rest. The Japan Amusement Machinery Manufacturers Association (JAMMA) created some industry standards, particularly for the design of game printed circuit boards (PCBs). And, things forever changed.

The most important and influential of these new standards was the PCB standard pinout. Any game PCB complying with that pinout standard is what we now call a JAMMA board. You can see the JAMMA logo stamped close to the pinout section of a JAMMA board. Almost all JAMMA boards sport that logo.

The wiring that connects the game's components - monitor, power supply, control panel, speaker, etc. - to the PCB is called a JAMMA wiring harness. The wiring harness 56-pin edge connector seats onto the PCB's pinout fingers.

There are many JAMMA terms that we have come to hear and use frequently - JAMMA board, JAMMA harness, JAMMA edge connector, JAMMA cabinet, and so on. At the root of their meaning is nothing more than the concept of PCB interchangeability between cabinets of *different* manufacturers.

And, it is the JAMMA standard PCB pinout (charted below) that has made it all possible.

The following JAMMA pinout chart is basically a map of the JAMMA wiring harness 56-pin edge connector. When properly seated onto the PCB, the connectors of the edge connector will align with the pinout fingers of the PCB, and your game will play.

When you tire of a game, you can plug-and-play the JAMMA PCB for your next favorite game. Plug-and-play simply means to unplug the edge connector from one PCB, and plug it onto another PCB.

And, that process of plug-and-play can continue on and on, because there are now 1,000's of JAMMA game PCBs that you can play in your JAMMA cabinet. Thank you, Japan.

JAMMA PINOUT CHART

Solder Side - Alpha Characters - 28 Pins - A-Z, a-f

The solder side is the bottom side of the PCB. It is the side where the soldered connections of parts are exposed to view. Few, if any, parts are located on the solder side. The solder side pinout is identified with alpha characters.

Parts Side - Numeric Characters - 28 Pins - 1-28

The parts side is the top side of the PCB. It is the side where the parts are located. The parts side pinout is identified with numeric characters.

Usually, the PCB is printed and the edge connector is embossed with the alpha and numeric characters.

GROUND - A, 1

GROUND - B, 2

+5VDC - C, 3

+5VDC - D, 4

-5VDC - E, 5

+12VDC - F, 6

KEY SLOT - H, 7

COIN COUNTER #2 - J

COIN COUNTER #1 - 8

LOCK OUT COIL #2 - K

LOCK OUT COIL #1 - 9

SPEAKER (-) - L

SPEAKER (+) - 10

N/C - M

N/C - 11

VIDEO GREEN - N

VIDEO RED - 12

VIDEO SYNC - P

VIDEO BLUE - 13

SERVICE SWITCH - R

VIDEO GROUND - 14

TILT (SLAM) SWITCH - S

TEST SWITCH - 15

COIN SWITCH #2 - T

COIN SWITCH #1 - 16

PLAYER 2 - START - U

PLAYER 1 - START - 17

PLAYER 2 - UP - V

PLAYER 1 - UP - 18

PLAYER 2 - DOWN - W

PLAYER 1 - DOWN - 19

PLAYER 2 - LEFT - X

PLAYER 1 - LEFT - 20

PLAYER 2 - RIGHT - Y

PLAYER 1 - RIGHT - 21

PLAYER 2 - BUTTON 1 - Z

PLAYER 1 - BUTTON 1 - 22

PLAYER 2 - BUTTON 2 - a

PLAYER 1 - BUTTON 2 - 23

PLAYER 2 - BUTTON 3 - b

PLAYER 1 - BUTTON 3 - 24

N/C - c

N/C - 25

N/C - d

N/C - 26

GROUND - e

GROUND - 27

GROUND -f

GROUND - 28

Understanding the JAMMA Pinout Chart:

N/C - No connection.

Key Slot - A keyed slot which aligns with a leave-out in the pinout section of the PCB.

This safety feature is provided to assure that the Power Section seats at the correct end of the pinout section. If the edge connector is reversed, and the Power Section is seated at the opposite or incorrect end, irreparable damaged can occur to the PCB.

If the key has been removed from the edge connector, then mark the connector as to the "Parts Side" to help assure correct seating.

Power Section - Pins A-F, 1-6, e, f, 27, 28

Video Section - Pins N, P, 13-15

Coin Section - Pins J, K, T, 8, 9, 16

Controller (Joystick) Section - Pins V-Y, 18-21

Pushbutton Switch Section - Pins Z-B, 22-24

R. Steve McCollum has been in the arcade video game business for over 25 years. You can learn lots more about arcade classics multicades at http://www.aceamusements.us/multiple-arcade-video-games-in-one-cabinet.html. And, more about arcade video game sales, parts, and services at his website, http://www.aceamusements.us/.