

December 2006

Slot Tech Magazine

SLOT TECH MAGAZINE

Slot Machine Technology for the International Gaming Industry



Oasis Double Header
Chapters 3 & 4

WMS Introduces
Transmissive Reels

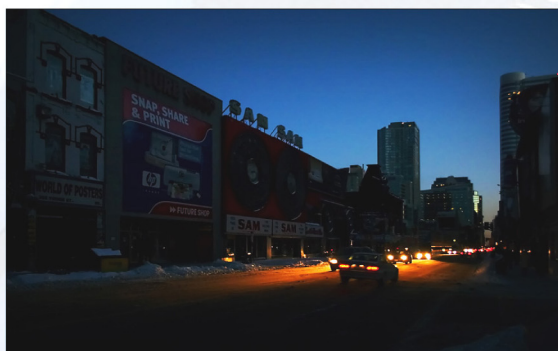
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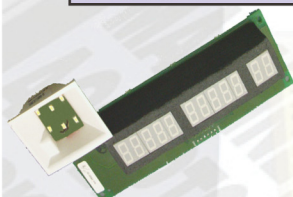
IGT Slant/Bar Top Ticket
Printer Arrow LED Board
Replaces the present LED Board

K626-DP



IGT Slant Top Display Panel Assembly
Replaces F4 fluorescent lamp and housing

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IGT Slant Top Reel
Denomination Area LED Board (Not Display)
Replaces incandescent lamp

**K902-105, K902-105W
K902-106**



IGT 17" Game King Side Panel LED Board
Replaces the 5 existing lamps

**K621-BVD
K621-BVD-W**



IGT Slant Top Bill Validator LED Board
Replaces plastic assembly in bezel

K627-DP



IGT Bar Top Display Area LED Board
Replaces the two incandescent lamps

K622-BVD



IGT S2000 Upright Bill
Validator LED Board
Replaces assembly in bezel

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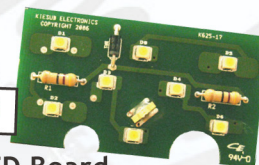
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IGT S2000 Upright Denomination LED Board
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IGT Upright Ticket Printer LED Board
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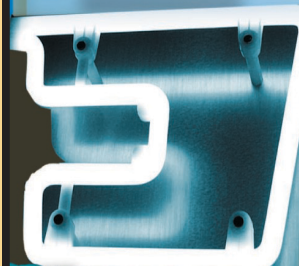
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Slot Tech Editorial

Dear Readers,

I saw some interesting things at the recent Global Gaming Expo in Las Vegas. I'll present some of them next month. This month, Slot Tech Magazine continues with Jason Czito's multi-part presentation on the Oasis system. This time, it's a double-header with chapters three (the Data Port Unit or DPU) and four (cables!). It's always nice to be familiar with which cable goes where in a system. It helps narrow the possible suspects when you're troubleshooting. If you don't know which cable connects to what, you waste time inspecting connectors and cables that can't possibly have

anything to do with your problem.

Atronic's Michael Brennan takes us on a trip to the Great White North only this time, it's the Gaming White North in his review of the casino business in Canada. Join him on a tour of lottery commissions and State run casinos. His article begins on page 22.

Kiesub Electronics has been helping casino operators with spare parts and electronics since 1972. They operate out of Las Vegas, where they not only stock all of the electronics spares that geeks such as myself know and love but also manufacture LED replacement panels for slot machine retrofits and repairs. Read a bit about the company and the products they offer, starting on page 28.

Okay, imagine an LCD panel. This shouldn't be too difficult for regular readers of Slot Tech Magazine. Remember, way back in October 2006 when we covered LCD monitor CCFL replacement? Now, remove all the translucent and opaque materials beneath the TFT screen itself and lay this transparent display over the reels of a slot machine and you have what WMS is calling "transmissive reels." It is an overlay that creates an exciting new dimension in reel slots by combining stepper reels with an LCD overlay that is used to display graphics and animations just as would be done for a video slot. It's a neat effect that is best seen in a little movie. You can see it at <http://tinyurl.com/ygmwdk>

Also from WMS is news of a really excellent new training program for slot techs. It's called Slot Machine University. This is not just another



OEM-based, send-'em-to-us-for-a-few-days/weeks type of class. It is an online training program that provides a nice training option for casinos that need to train their technicians but do not have an in-house training program. I have seen a sample of the program and it's really impressive. I am 100% behind anything that helps train slot techs. For more information, a demo and a sample lesson, visit slotmachineuniversity.com. Tell 'em you read about it in Slot Tech Magazine.

And speaking of training and education and such, my congratulations to JCM and my friend David Kubajak, head of JCM's (you guessed it) training division on becoming the first company in the gaming industry to attain certification as an IACET authorized training provider by the International Association for Continuing Education and Training. Read more about the project and how JCM continues to lead the gaming industry with the best training program around (JCM is always a big part of TechFest) on page 35.

That's all for this month. See you at the casino.

Randy Fromm

Randy Fromm

Randy Fromm's Slot Tech Magazine

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slot-techs.com

SUBSCRIPTIONS

Domestic (USA)

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Cabling & Connectivity



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Page 5

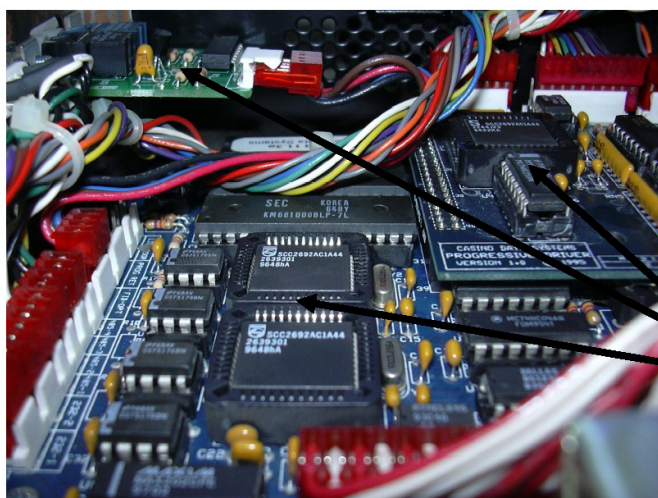


By Jason Czito



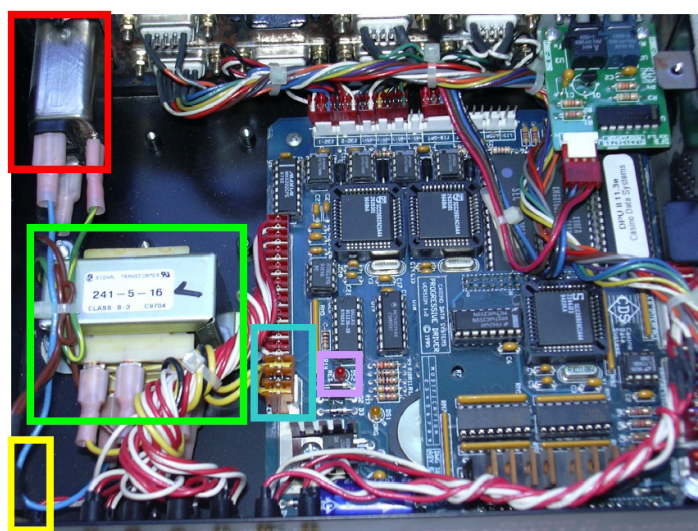
Chapter 3 – The Data Port Unit (DPU)

A DPU is a piece of hardware that polls the Sentinel boards for their information and acts as a buffer between the Poller and the Sentinels.



Fundamentally, a DPU is a souped-up Sentinel.

Progressive Driver
DFB
DPU II



DPUs run on DC voltage, but unlike Sentinels have the transformer built-in. Circled in red is the line filter, circled in green is the transformer, and circled in yellow is the fuse. The plug circled in blue is where the power enters the DPU board. Correct voltage and polarity will light the red LED (DS2) circled in lavender.

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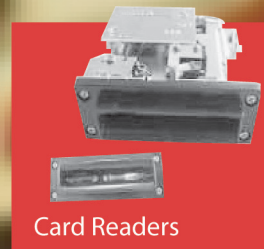
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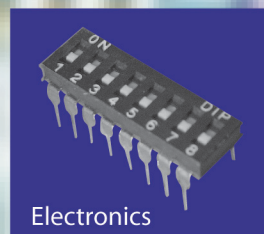
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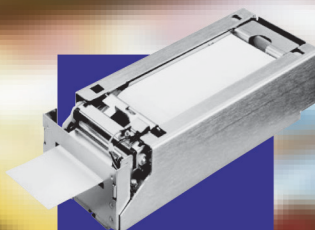
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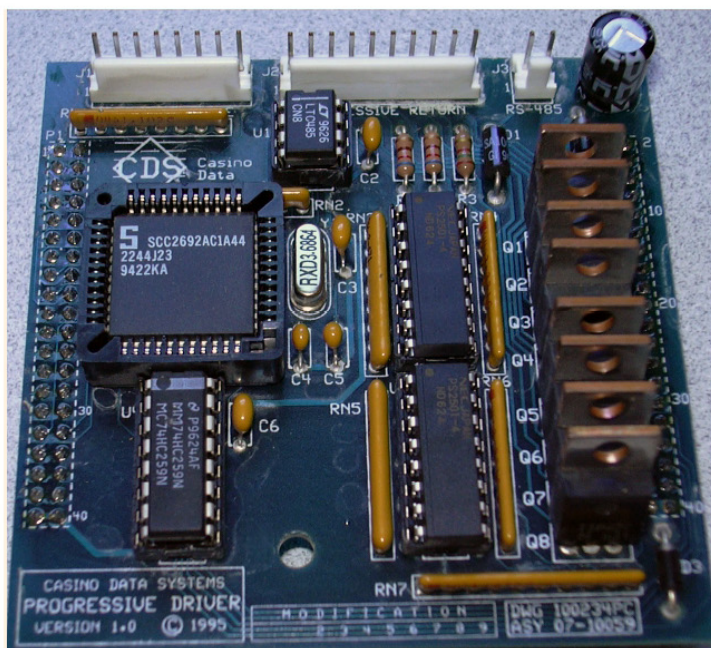
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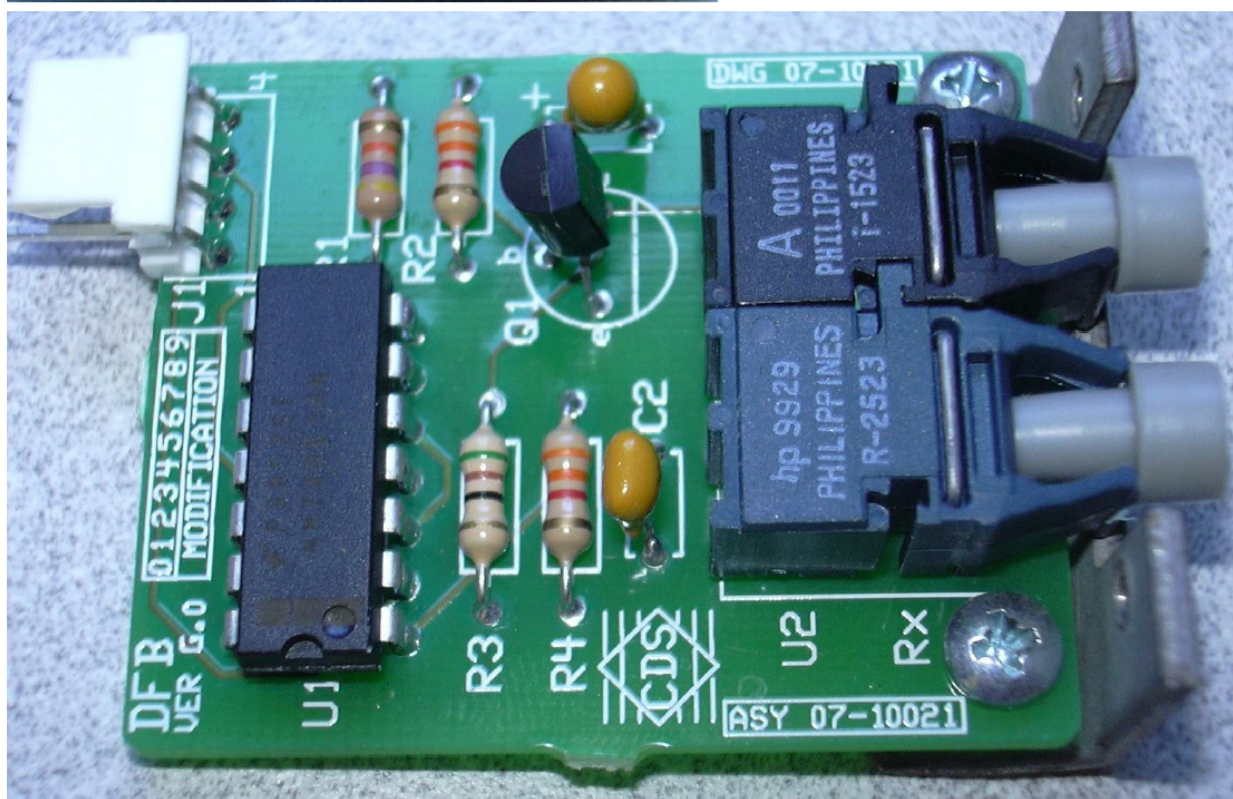
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This is the Progressive Driver board. It is only necessary when a casino is using CDS' Turbo Progressive System.



This is the DFB (DPU Fiber Board). It converts fiber optic communication into electronic signals for the DPU. Any DPU can be fiber-optic ready if this board is added. The presence of this board will hamper the use of RS-485 Home Run communication on the DPU. Consequently, it can handle fiber or wire, but not both. As with fiber optic Sentinels, loss of power to the DPU will drop communication from this port. Power applied to a functioning DFB in a functioning DPU will cause port U3 (Tx) to light up. Note that this DFB is version G.0. SFBs have a similar version number. The version numbers of these boards should match. If there is a communication problem with the fiber optic lines, a version mismatch between the DFB and SFB may be the problem.

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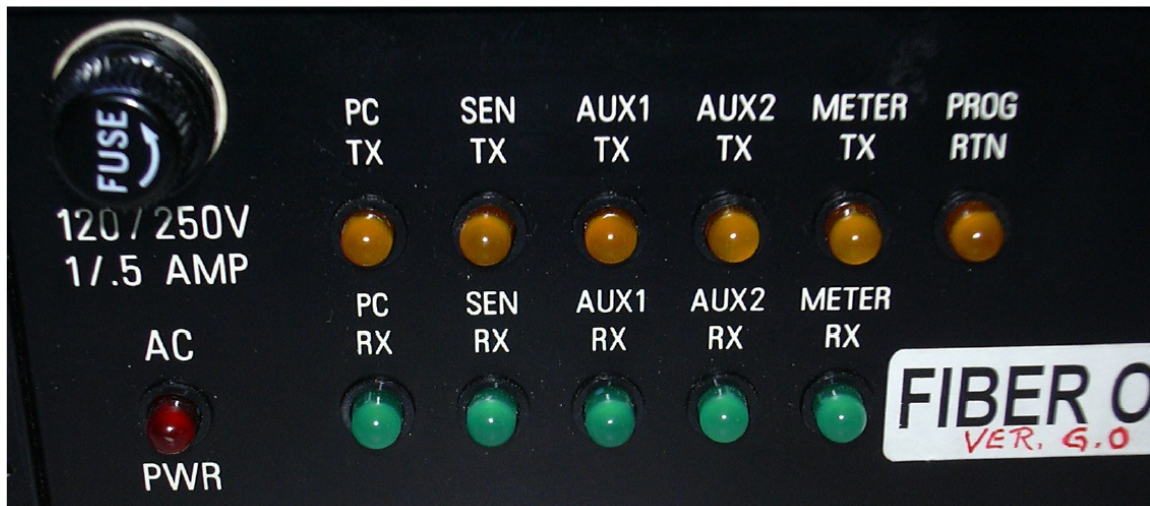
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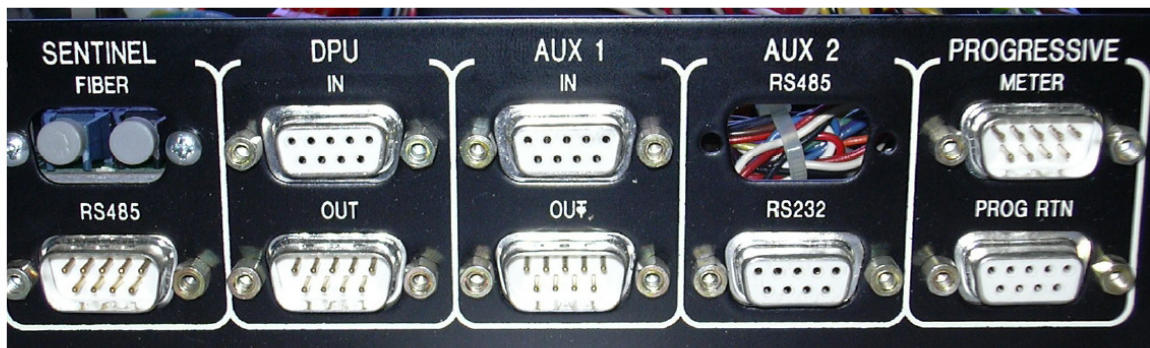
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This is the front of the DPU. The red “AC PWR” LED should be lit when power is applied to the DPU. With no communication cables applied, SEN Tx should flicker as the DPU transmits poll requests. (If the Fiber optic board is connected, SEN Rx will flicker as well.) When Sentinels are communicating with the DPU (either by fiber or cable), SEN Rx will flicker, indicating that the DPU is receiving Sentinel information.



The lights on the front of the DPU correspond to activity coming into these ports.

“PC Tx” and “PC Rx” will light when the DPU is in communication with the Poller, which occurs in the ports labeled “DPU” on the back.

“AUX2 Tx” and “AUX2 Rx” will light when communication happens between a computer and the DPU. This is because the computer will connect to the RS-232 port under “AUX 2” (for configuring the DPU).

“PROG RTN”, “METER Tx” and “METER Rx” are for the Turbo Progressive system. “AUX 1” connects to the Scanner, which is another part of the Turbo Progressive system.

The “SENTINEL” ports are where the Home Run carrying information from the Sentinels to the DPU plug in. As the Home Run may be either fiber or cable, both types of plugs are represented here: “FIBER” for fiber optics and “485” for wire cables.



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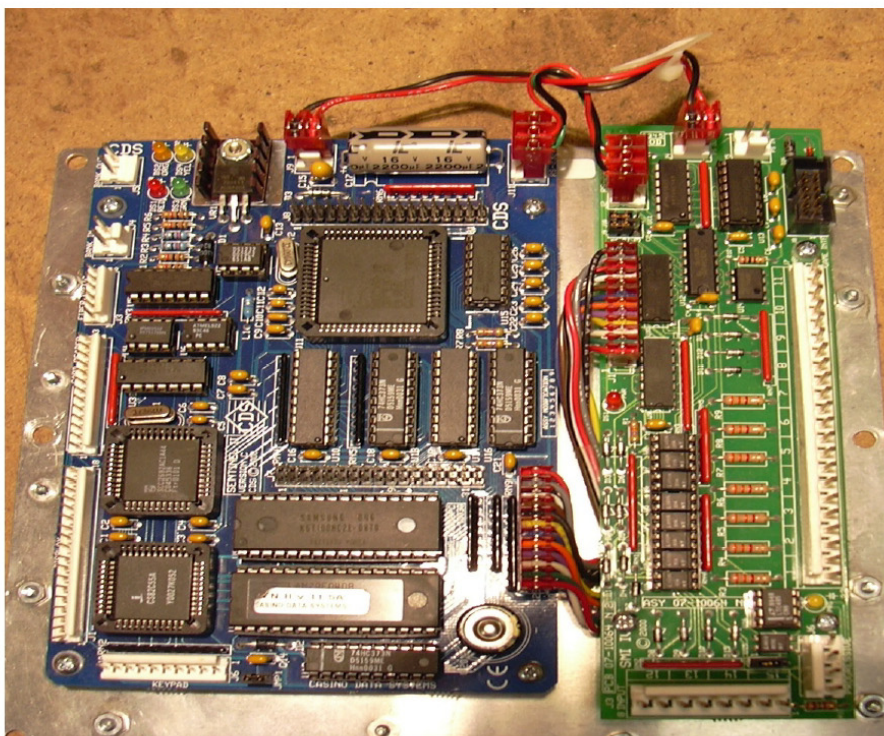
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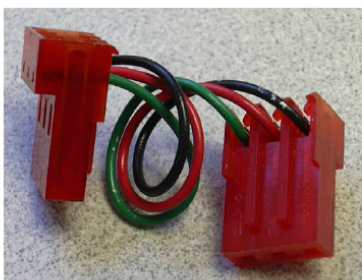
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Chapter 4 – The Cables



This picture shows the placement of the following three cables on the Sentinel Board. The first two are only required if the SMI4 will be receiving machine information in SAS protocol or is a part of CDS' Turbo Progressive System. The third, largest one is always required.

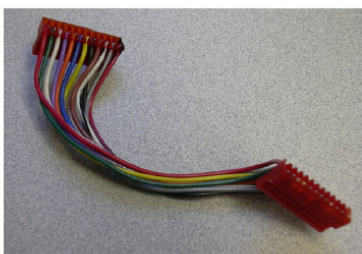
A: The cables of the Sentinel Board



This cable connects the SMI4 to the Sentinel, and carries RS-232 communication.



This cable connects the SMI4 to the Sentinel, and carries power. The power cable typically plugged into the Sentinel is plugged into the SMI4, and this cable provides power to the Sentinel from the SMI4.



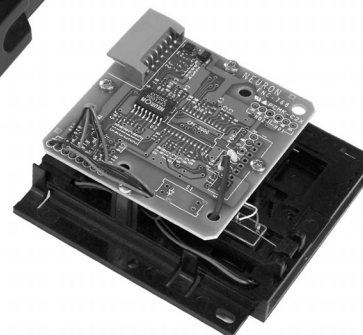
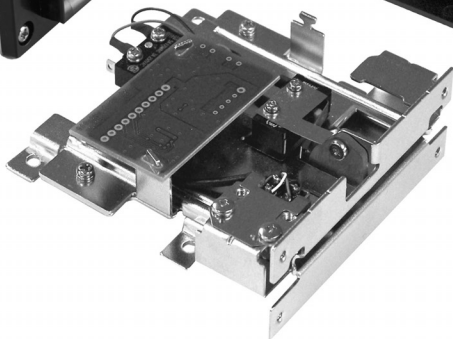
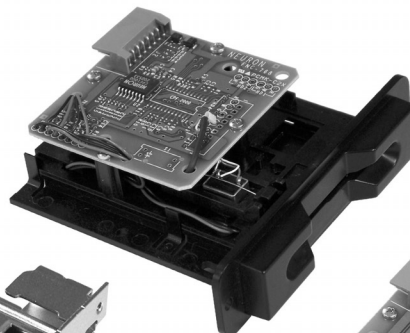
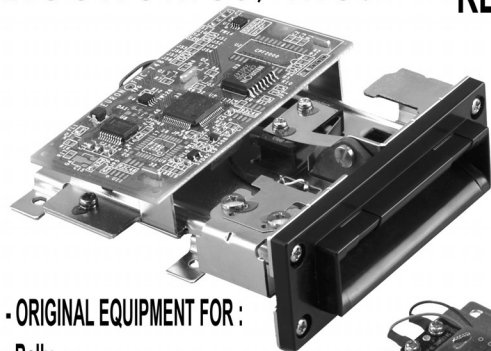
This cable connects the SMI4 to the Sentinel and carries pulse data from the pin pairs (J7 and J3). One plug of the cable has a red wire on each end and the other has one red and one black on the ends. The end with the black cable *must* be plugged into the SMI4. Plugging it in backwards will not work. The red LED on the SMI4 will only light when the cable is installed correctly.

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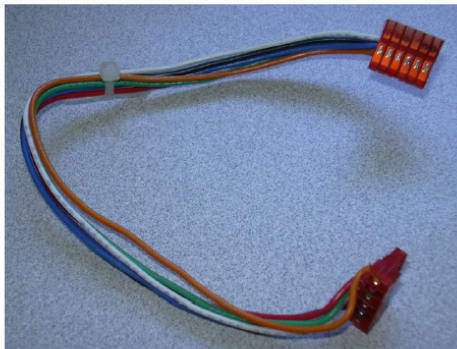
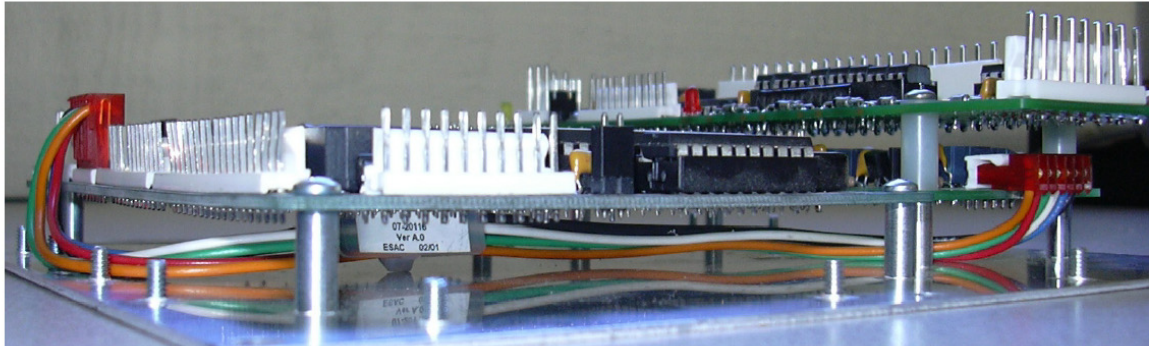
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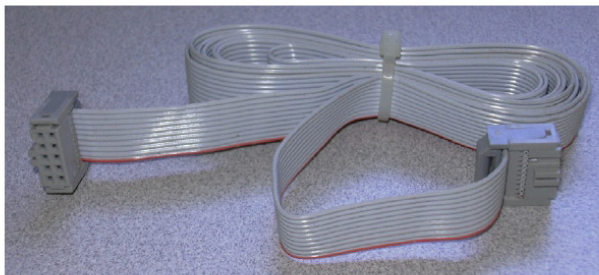
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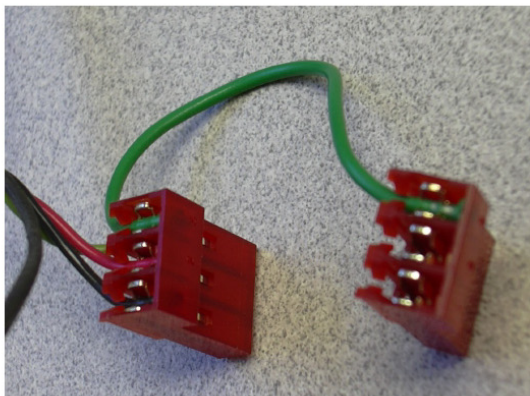
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This is the SFB cable that connects the Sentinel to the SFB. It is shown in place on the Sentinel Assembly above.

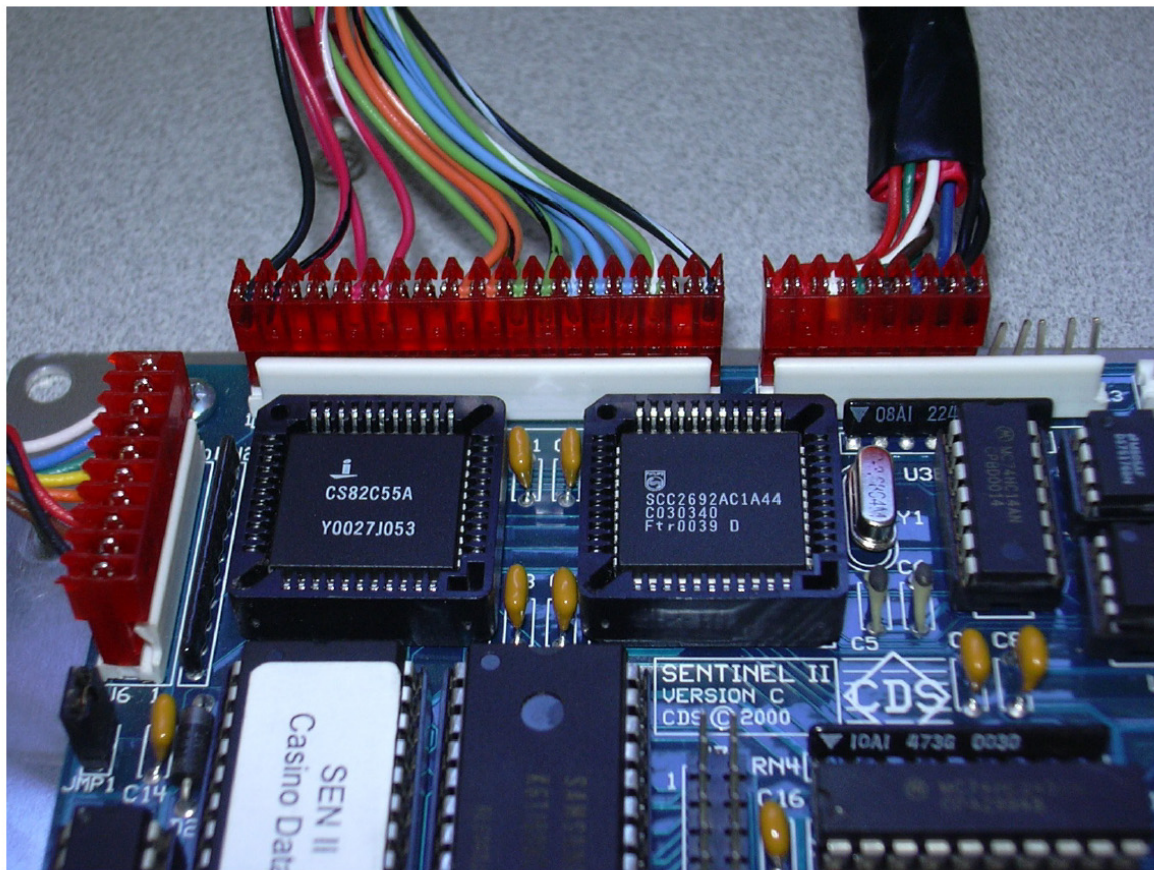


This is the SAS ribbon cable used by older games to connect to the SMI4. Other manufacturers' SAS cables may not look like this, but the connector will look similar.

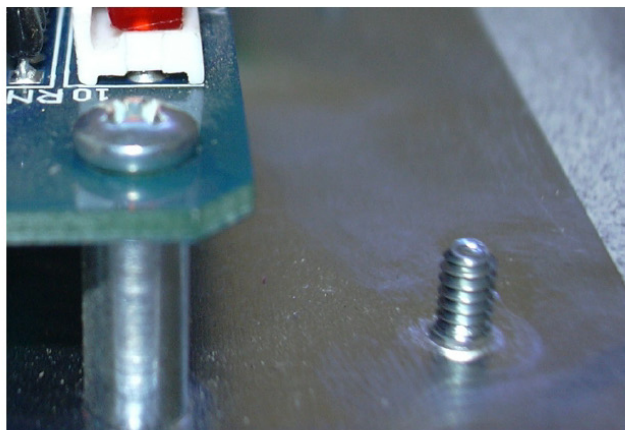


This is the end of the RS-232 serial cable that connects most modern slot machines to the Sentinel board. Machines that put out clean RS-232 serial communication may plug directly into the RS-232 port on the Sentinel. Note the extra plug connected by the one, green wire. This is for transmitting progressive information to the SMI4 when using CDS' Turbo Progressive system, and is not necessary otherwise.

The machine end of these RS-232 serial cables varies by manufacturer since they all have their own interface design.



This shows the ends of the interface items (keypad, display, and card reader), and their respective places on the Sentinel. From left to right is the keypad cable end, display cable end, and card reader cable end. Note the card reader cable end on pins 1-8. The other ends of these cables are specific to their part and are easy to match.

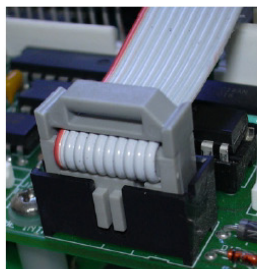


Some cables have ground wires in addition to their plugs. They are to be attached to the bolts available on the mounting plate.

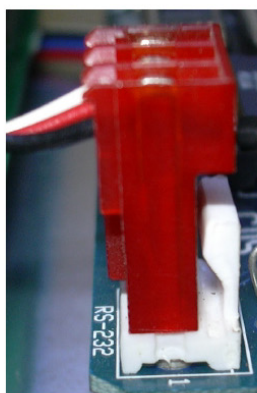


One of the grounding cables that attaches to the bolts on the mounting plate.

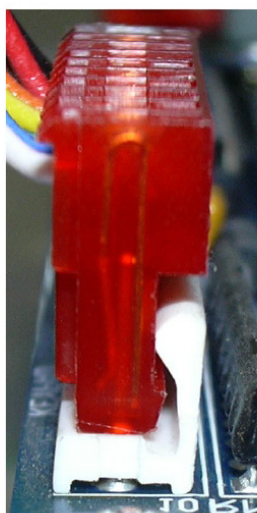
All cables for the Sentinel board are “keyed”, meaning they have some way of identifying the correct orientation on their respective pins. Below are some examples of keys found on the Sentinel.



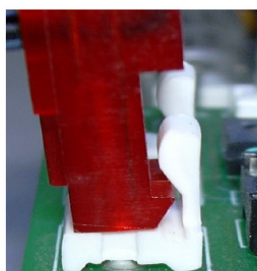
The SAS ribbon cable has a tooth that only allows it to fit into the plug one way.

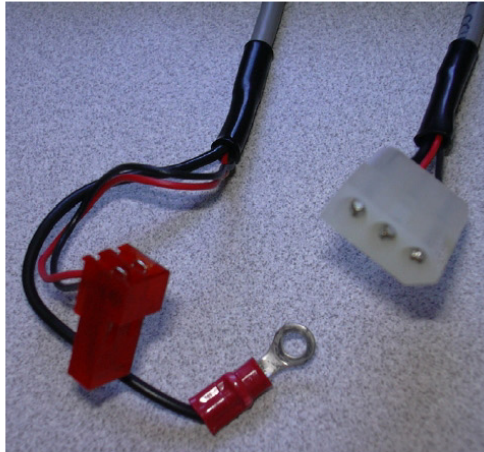


Most RS-232 serial cables have this style of connector. One face has ridges on it and the other does not. If the cable is put on backwards, the ridges will not allow the plug to fit on the pins because of the shape of the plug.

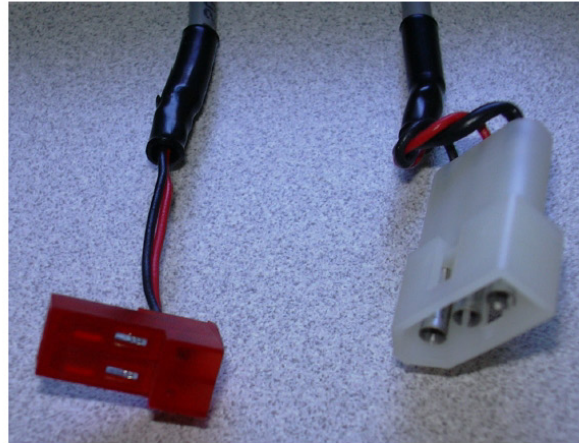


Some plugs have teeth in addition to ridges to help keep the plug in place.



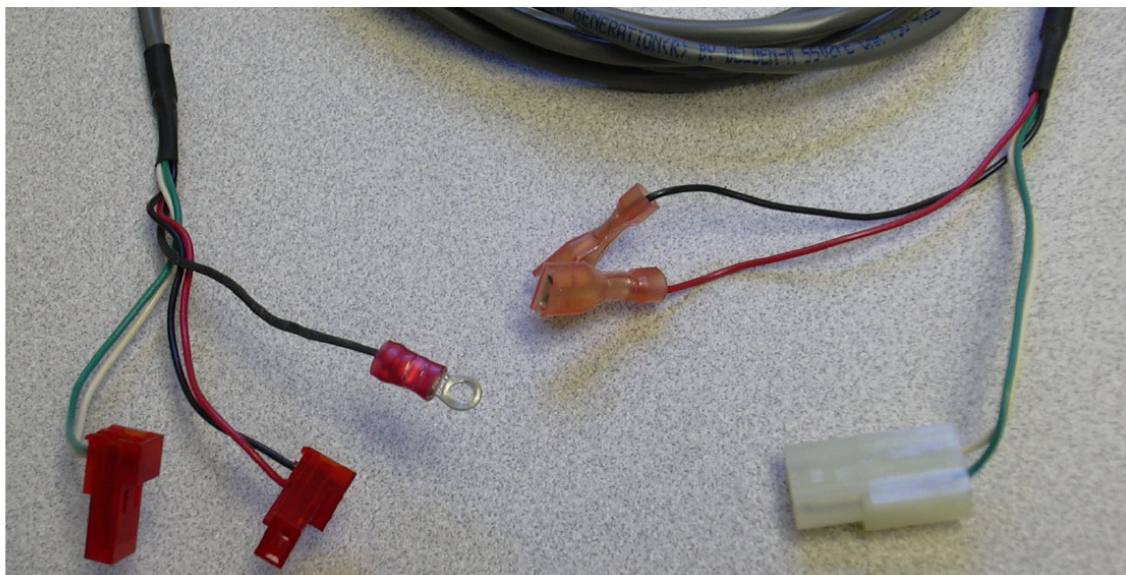


“Bank Out”

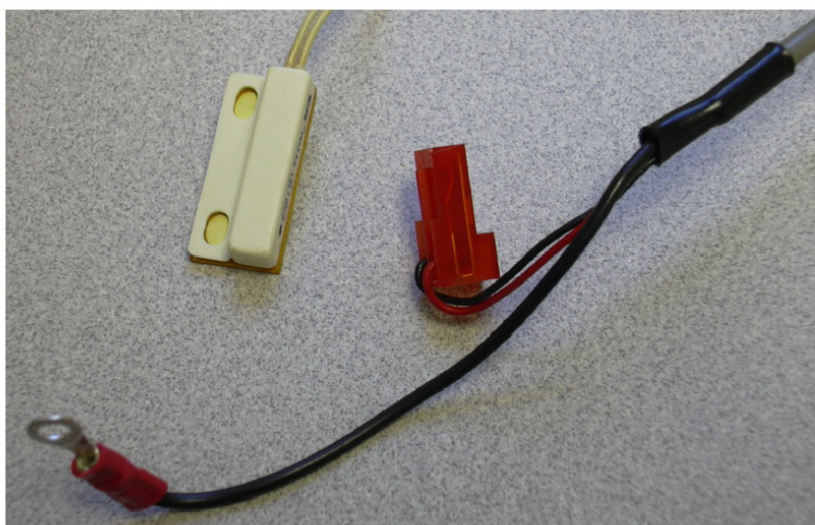


“Bank In”

These two cables are the Bank In and Bank Out for RS-485 Home Runs. While they both have connectors for two pins on the Sentinel, the Bank Out will always have a ground wire and a male Molex plug. The Bank In will always have a female Molex plug and no ground wire. Occasionally these cables will be black instead of gray.



This is the cable that runs to the drop door. It has two sets of wires for connecting to the pin pairs on the SMI4. One set (red and black) end in generic female wire connectors. The other set (green and white) connect to a 2-pin male Molex connector. Only one of these pairs will be used to monitor the drop door, so ensure that the ends that connect to the door sensor are the ones that are connected to the SMI4.



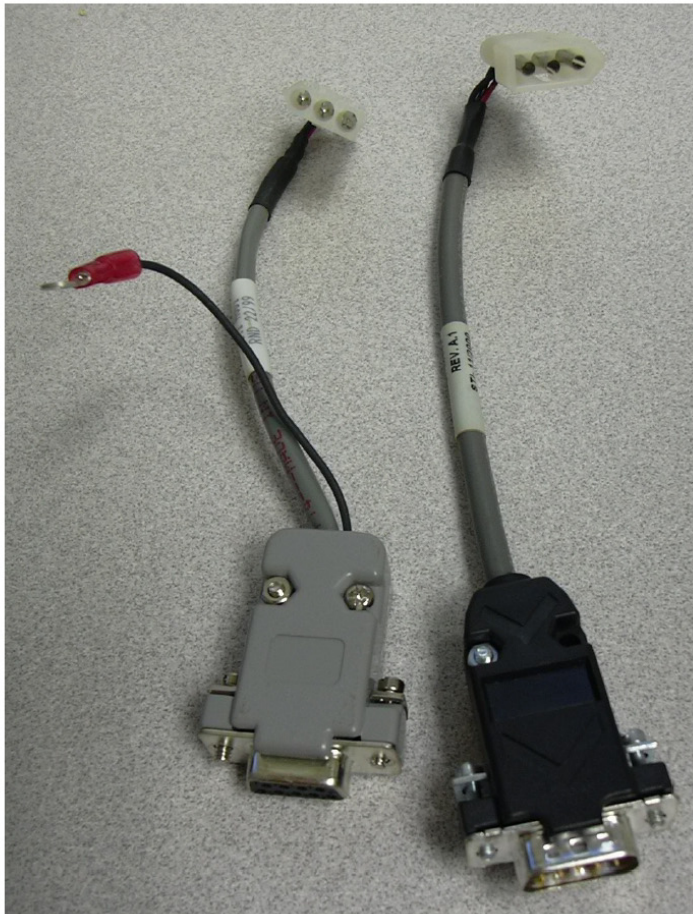
These are the ends of the cable that monitors the Logic Doors. It has a standard 2-pin connector and ground wire on one end. The other end has a magnetic reed switch that may be taped or screwed where it is required.



These are the wires used to ground Sentinel boards. One goes from the mounting plate to the machine chassis and the other goes from the mounting plate to the card reader.



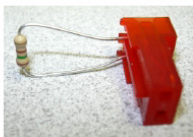
These are the fiber optic cables that CDS uses. They are fairly thick as far as fiber optic cables go if you've ever dealt with them. Some are grey in color, some are black but they will all work.



These are the cables that interface with the back of the DPU. All of the connectors on the back, with the exception of the power cord and fiber optic ports, use 9-pin sub-D connectors. The colors are irrelevant. Note the ground wire on the cable on the left. It is a female connector which connects to the outgoing ports on the DPU (hence the ground wire since outbound communication cables will have these). The cable on the right has male connectors which connect with the inbound ports on the back of the DPU, and has no ground wire. It ends in a female Molex connector while the other cable ends with a male Molex connector.



This is a terminator for a DPU. When DPUs are daisy chained, it is recommended that the last one in the chain have a terminator plugged into its “DPU OUT” port. These terminators will always have female connectors. Inside is just a resistor that connects two of the incoming wires. This helps for cleaner RS-485 communication.



This is a terminator for a Sentinel. When Sentinels are daisy chained, it is recommended that the last one in the chain have a terminator plugged into its “BANK OUT” pins.



This is a jumper for the pin pairs on the SMI4 board. When a pair of pins is programmed for a door that does not exist, it is recommended that this jumper be placed over the pins to ensure that false door-open signals aren't triggered.

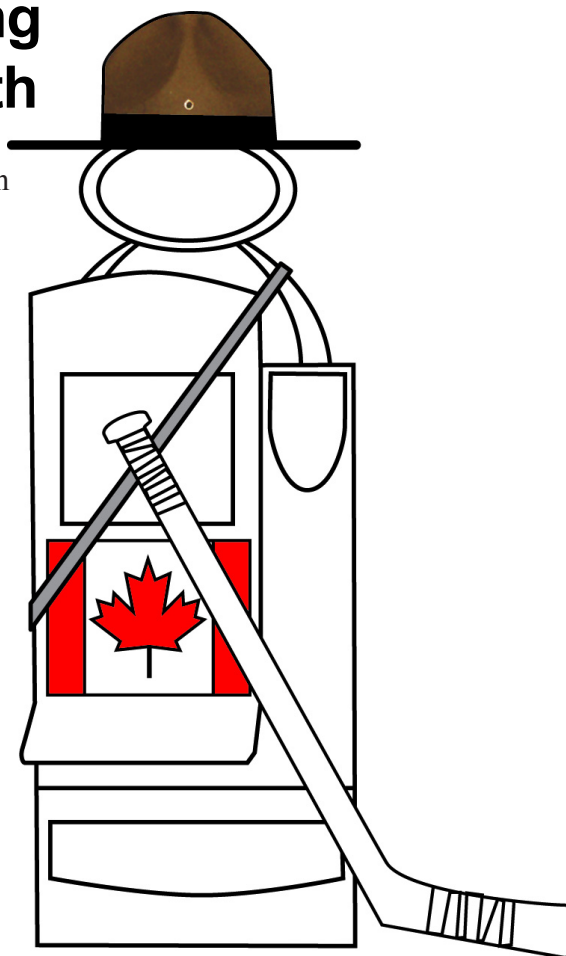


These tiny, white cylinders are specifically for mounting the 2X16 LCD displays. They go over the mounting pins to prevent the displays PCB from getting bent while allowing the display to be firmly attached to the bracket.



The Gaming White North

By Michael Brennan



Hold up. Let's get the jokes out of the way so we can focus on the details of the article. OK. How do you spell Canada? "C - eh - N - eh - D - eh," of course. Eh?

And what about the stereotypes? Picture a mullet-sporting white male watching a hockey game, shouting "hoser" at his Mountie friend while swigging a Labatt's Blue and munching on a Tim Horton's donut.

But I can say with confidence that I am fond of Canada, having grown up close to the Ontario border. And although I have, in fun, slung a few ribbing arrows that way, I get a little defensive when an ignorant US acquaintance makes any general, mean-spirited, and uninformed comments about America's friendly neighbor to the north.

More advanced stereotypical fodder includes: loonies, toonies, acronyms (GST,

SCTV, QEW), sled dogs, Don Cherry, the metric system (the rest of the world must be wrong), Alex Trebek, and another game show host, Howie Mandel (sorry, that was a mandated company tie in to Atronic's Deal or No Deal™).

And if you really want to stir up trouble, just say, "Gretzky traded to Los Angeles."

However, in many accounts Canada is more progressive than the States. Politics aside, it's hard to really knock Canada's socialized health care, cleaner environment, low violent crime rate, commitment to education, multiculturalism, unfettered wilderness, longer life spans, more melodic national anthem, and, controversial ideas like lifestyle acceptance and marijuana decriminalization. Plus, why do some Americans claim they're

Canadian when travelling abroad?

And what about the list of respected and talented celebrities that you may never have known were from Canada? A very abbreviated list includes Alexander Graham Bell (for history), Austin Powers (for humor), and Pamela Anderson (for, uh... forget it).

So, obviously, there are countless quirks and differences between US and Canadian culture, just like there are quirks and differences between both country's gaming markets.

Without knowing everyone's knowledge and experience regarding the Canadian market, we'll throw it all out there, from A to Zed.

In General (Romeo Dallaire)

First off, in Canada the government pretty much runs the show. Each province (or group of provinces) has its own specific rules but generally, the provinces own and are responsible for all slot machines and profits incurred by these machines.

So, when a manufacturer sells a machine, they are selling it to a province's gaming commission or lottery corporation.

The province then distributes the machine to individual casinos. Most casinos are run by private firms that function like management companies, receiving a percentage of the profits. Some casino employees are government employees, while others are from private companies.

Usually, the purchased slot machines ship to a central warehouse. Games are not shipped directly to the casinos, except in a few cases in Ontario. Instead, machines are tested by the local gaming commission for weeks before they make their way onto a casino floor.

There are approximately 85 casinos throughout Canada. The provinces with the most

casinos include British Columbia, Alberta, Saskatchewan, and Ontario. There are also a couple casinos in Manitoba, Quebec, Nova Scotia and Prince Edward Island.

And if you happen to be vacationing in the Yukon, Newfoundland or New Brunswick (very chic destinations for the traveller

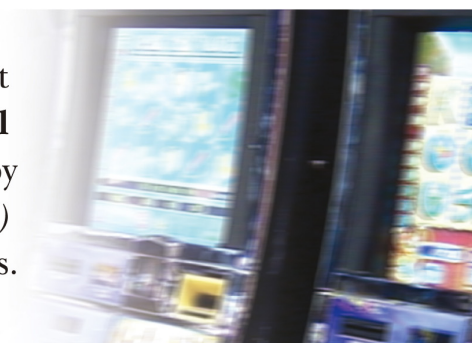
of discerning taste) and have a hankering to visit a casino, sorry, you're out of luck, because there are no casinos there.

Tonight's Entertainment: A Goalie Standing On His Head

Let's start examining the differences between US casinos and those from the Great White North. One

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variance involves the layout and function of a typical casino.

While most American casinos follow a “resort” business model where gaming is combined with hotel rooms and entertainment options, almost all Canadian casinos are non-resort, focused on gaming and dining options, but with limited amenities.

In addition, participation and wide area games are less prevalent and governed by a different set of rules. The Canadian criminal code forbids non-religious or non-charitable organizations from profiting on things like WAP, so manufacturers cannot operate and monitor WAP games themselves.

Instead, wide area games are provincially-run or, in Ontario, stand-alone and based on a daily fee. Most provinces run, monitor, and pay out the jackpot.

Grade 13 Testing (There was a Grade 13 back In the day)

Another big difference involves testing. Some Canadian provinces use GLI as their independent testing lab and accept transfer letters, others do not. But each province performs some additional testing, and most have their own gaming commissions.

It can be argued that this testing is more from an IT perspective, not from the

viewpoint of a slot technician. Another way to put it is that the GLI approval letter provides Canadian provinces the ability to put games in casinos, but the government’s own testing ensures that the software/hardware in question works properly with their systems and peripherals.

This is called exclusion testing. Canadian labs analyze hardware and software in conjunction with their accounting system, preferred ticket printer, bill validator, coin handling, and more of the like.

In the past this additional layer of testing has uncovered a couple issues that made it past an independent lab. Finally, Canadian test labs can accept unapproved software for testing. Try that in a place like Missouri.

Duty Free

After the games are tested and approved, they can be installed. The government is very involved during installations. Usually in-house contractors take care of the electrical, carpentry, and such, while the manufacturers may lend a hand for things like sign and merchandising packages.

Atronic employs two Canadian technicians, one on each coast. With the rest of Atronic’s North American technician workforce located in the States, sometimes

there is some international confusion when an American chap heads up north to help out.

Basically, American technicians are allowed to perform post-installation warranty work and can “train” local technicians. Also, only Quebec, Nova Scotia, and Ontario require that technicians are specifically licensed for their provinces.

But sometimes it’s not so easy for a US technician to simply cross the border to work on a Canadian game, and vice versa. I’ve heard stories of confiscated tools and enormous delays along our friendly border.

And in one case at Atronic, a simple ride from Canada to the Buffalo / Niagara Falls Airport in a company truck resulted in detained employees, separate “Gestapo-like” interviews, and denied entry into the US.

This all happened on the “Peace Bridge.” Can’t we all just get along?

“Mr. Prime Minister...”

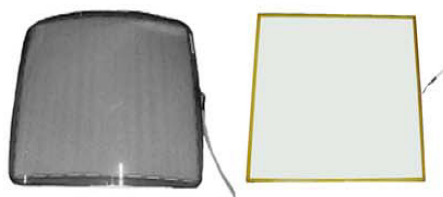
Intense government involvement in Canadian gaming creates some interesting scenarios. In Alberta, for example, the regulators and inspectors are part of the same organization as the guys that are purchasing the games and setting them up. Having inspectors and marketers

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under the same blanket is unheard of in the US.

Another interesting wrinkle is that in some casinos private technicians can work on slot machines, but are not allowed to perform certain functions, like accessing the logic box. Only provincial employees can work on items in the logic box.

This created an interesting dynamic during one training session. Our trainers were poised to show the private technicians the entire game, including the boards in the logic box, but the provincial employees intervened to prevent this from happening. You would think a little knowledge wouldn't hurt.

(Degrassi Junior) High Points

Despite the fact that they are more government-focused than commercial and not exactly on the "cutting edge" of some industry trends, Canadian casinos have many positives aspects.

For example, some provinces are forging ahead with a total cashless floor. And regarding the games or content side of the business, Canadian casinos do keep up with the latest and greatest products. I've been told that most Canadian floors would rival casinos in the US for product offering.

Furthermore, every casino in a province uses the same

accounting system, bill validator, ticket printer, and other peripherals. Conformity is the name of the game. This means you may be stuck with something you don't like, but at least you know exactly what to expect. Trouble-shooting becomes easier and scenarios more familiar.

(Ontario is a bit different here as well, since their commercial casinos use SDS, while the OLG-controlled casinos use Mikohn).

Currently, the most prevalent selections in Canada include Mikohn player tracking systems, JCM bill validators, and FutureLogic printers. Basically, the provinces tend to follow the industry standards forged by the manufacturers. Mikohn is an anomaly. And as with all government operations, change is slow. It takes about 5 to 7 years to change accounting systems.

All gaming information in each province is collected in a central location. In Alberta, there are around 9000 slot machines. Every single one reports to the St. Albert central office. This is one very large "back of the house."

Centrality is also a plus because it controls communication. In Canada there are well-defined points of contact. However, if you get on the wrong side of one

of these points of contact, it may become difficult to attain any audience.

Rush to Judgement

Back to Alberta. In this Western province lies the Boomtown Casino in Fort McMurray, a great example of how Americans and others develop misconceptions about the Canadian gaming market. Geographically, Fort McMurray isn't just up north, it is way up, up, up there, seemingly closer to the Arctic Circle than to the US border.

When I saw it on a map, I assumed the casino was a frigid shack, with seals barking around its front door and Eskimos dropping frozen pennies into ancient slot machines. But chock full of igloos it is not— Fort McMurray is a boom town, swelling with riches due to a recent oil boom. In fact, officially Fort Mac is a "hamlet." Sounds sophisticated, no?

Furthermore, the hamlet's Boomtown Casino has 400 slot machines that average around \$700 a day each in profit. It's arguably one of the most profitable casinos and an amazingly busy casino for such a limited population.

So the lesson, again, is don't Rush to judgement (Geddy Lee would appreciate it). Eh?

**- Michael Brennan
mbrennan@atonic.com**



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- Slot Technical Manager

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Be prepared for six hours of accelerated learning each day. Class begins at 9:00 am sharp each day and continues until 4:00 pm. The Casino School provides each student with reference materials and troubleshooting guides that will be valuable aids for repairing equipment on location and in the shop.

Students learn how to work with:



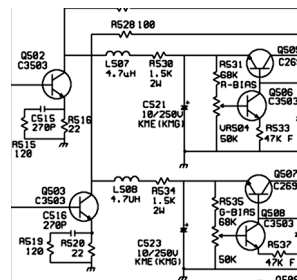
THE DIGITAL MULTIMETER

This relatively inexpensive piece of test equipment is easy to operate. Casino School students learn to use the digital multimeter to perform tests and measurements that will pinpoint the cause of a failure down to a single component.

ELECTRONIC COMPONENTS

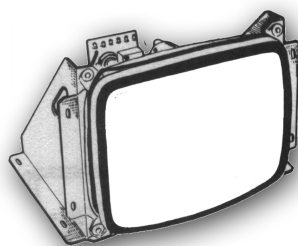
The individual components used in games are introduced. Parts such as resistors, capacitors, diodes, potentiometers and transistors are covered individually. Students learn how the components work and how to test them using the meter.

Schematic diagrams are the "blueprints" for electronics. Learning to read schematics is easy once you



POWER SUPPLIES

Power supply failure is a common complaint in many different types of systems. Power supply failures are discussed during the class, along with shortcuts for troubleshooting and repairing them.



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Kiesub Electronics Offers LED Solutions

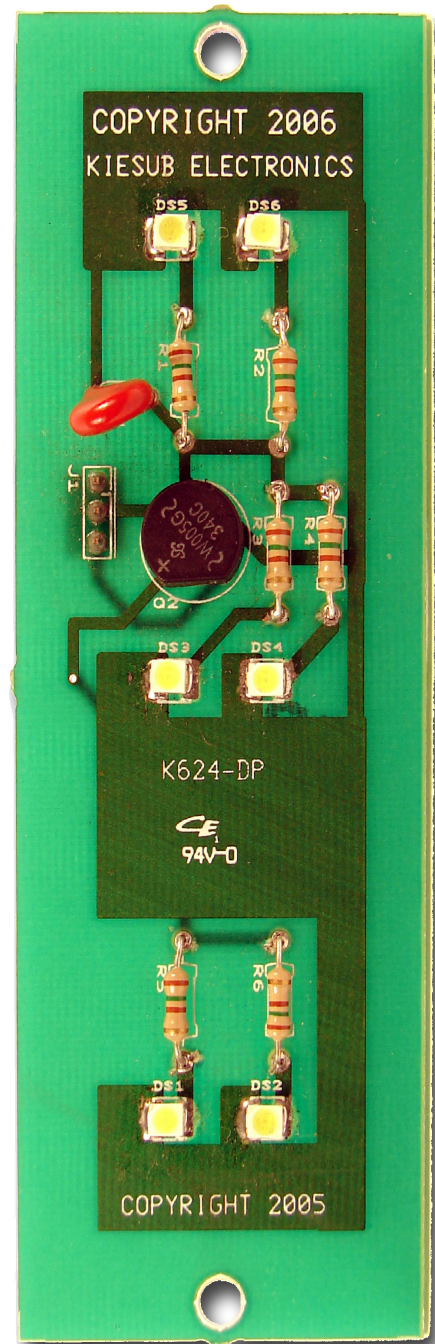
Serving the gaming industry from Las Vegas since 1973

In an October 16, 2006 article, the Wall Street Journal featured ten innovations that will reduce the amount of energy we consume. The "Journal" article cited the increasing use of light emitting diodes (LEDs) as a replacement for incandescent lamps as a means to "slash power use." The gaming industry, a huge energy consumer, is clearly paying attention, and it should. Outdoor signage and elaborate stage shows are obvious areas of heavy power consumption. Perhaps less obvious is the gaming floor. The average gaming machine consumes 1200 watts of energy per hour, 24 hours per day, 365 days per year. In Las Vegas, where electricity costs about 9 cents per KWH, the average gaming machine consumes \$946 of power per year. Multiply that by 3,000 machines and a large casino is looking at close to a \$3 million power bill just to power their gaming machines. Further, gaming machines generate a substantial amount of heat, which requires additional cooling capacity and increased power costs for the casino. With some machines, lighting (displays, panels and flashing signage) can represent half of the power consumed.

LEDs increasingly have been used by the gaming industry to reduce the power consumption of gaming machines.

Another alternative being explored is cold cathode fluorescent lamps (CCFL). While CCFL saves energy when compared to the miniature incandescent lamps traditionally used to illuminate machines, the energy savings is only 15-25% as compared to 60-80% savings using LEDs. Further, while CCFL devices tend to last longer than incandescent bulbs, the extra life span is insignificant when compared to the 5-10 year life of an LED. The longer life span of LEDs becomes significant when evaluating labor as well as energy costs. Few incandescent lamps last longer than six months. Many burn out in 30 days. Assuming a three month life for incandescent, a tech would expect to change a bulb 20 times over five years, as compared to a single initial installation of an LED.

Kiesub Electronics, which has been serving the gaming industry from its Las Vegas base since 1973, has developed proprietary LED systems to illuminate much of the gaming machine: Bill Validator, Denomination



Arrow, Ticket Printer, Display Glass, Upper Glass, Belly Glass and Player Buttons. More than 50 casinos have installed one or more of these devices. Casinos have been

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slow in some cases to install these devices because of prior bad experience with LEDs furnished by other suppliers. The primary complaint has been that the other devices did not live up to expectations because the engineering solutions were poorly designed. Kiesub was fortunate both in learning from the experience of others and the willingness of techs to share their knowledge and ideas, and was therefore able to develop boards which both work and last. Kiesub has also developed software which allows casino personnel to calculate the savings and ROI from installing several of its devices. The software allows the casino to plug in its own power rates, labor costs and costs of lamps (CCF or incandescent) to make the calculations. In a recent calculation, Kiesub estimated that using three of its boards (Bill Validator, top and side glass illuminator) in 1000 Game King slant top machines would save a property more than \$630,000 over a five year period. An executive for a publicly traded gaming company

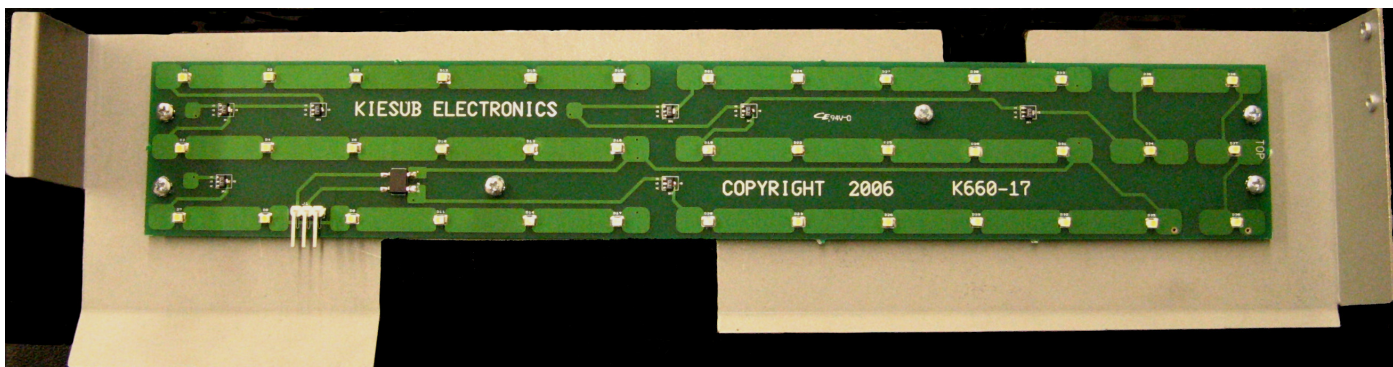


All Kiesub products are 100% assembled at their Las Vegas facility.

commented that the savings generated company wide using Kiesub LED boards could actually have an effect on earnings per share of the corporation.

While it has sold LED boards to smaller and larger casinos and to individual properties and corporate groups, Kiesub has found that the most rapid acceptance comes from casinos at which the slot director or vice president of slot operations is measured on the overall profitability of the gaming floor. In some cases, the casino does not make a direct charge to the slot department for electrical

power consumed, and therefore, the slot executive is not measured on energy use. The slot executive is put in the uncomfortable position of bearing directly the initial expense of the LED boards but not benefiting directly from the huge savings in energy usage. In these cases, the slot executive often tries to enlist the support of the manager of the property or casino group charged with reducing energy consumption. Since the recovery of the initial investment in the boards is often less than a year (and seldom more than two years) the executives working together expedite the decision making.



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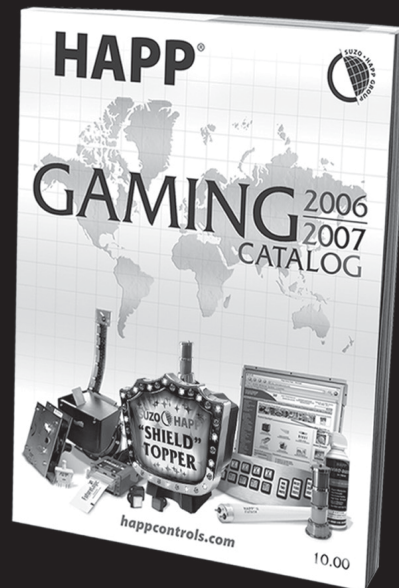


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Kiesub has worked with slot technicians to make the boards easy to use so as to avoid high installation cost.

Many early devices required a certain amount of rewiring or modification to the machine. Kiesub boards are all "plug and play." Once a technician has installed a few boards, it rarely takes more than two to three minutes per machine to install the remainder.

Kiesub's primary goal in developing LED boards was reduction in energy and labor costs. Two other benefits materialized: First, all of the graphics on the machine are enhanced due to the optical wavelength of the light. Silk-screened color shades on belly, upper, and display panel glass material are

much more robust and "true color" with LED lighting. Incandescent or fluorescent lamps actually colorize the glass due to the burning of the filament or the arc effect from the fluorescent, which creates a different wavelength of light. LEDs generate a white more closely matching the full spectrum of sunlight and appear much cleaner. If shading or light bending is desired, several shades of cool white, pure white or special colors to customize a particular décor and casino theme are available in the LED component.

Secondly, LEDs generate very little heat inside a gaming machine. Since heat tends to degrade electronic components, reducing the

thermal effect should extend considerably the expected life of any machine and/or reduce the need for frequent maintenance.

Because of the many benefits from LED devices (energy savings, labor savings, appearance, and extension of machine life) the proprietary boards have become one of Kiesub's most successful product offerings.

For more information, contact:
Kiesub Electronics
3185 S. Highland Dr. #10
Las Vegas, NV 89109
Phone: 702-733-0024
Fax: 702-733-0026

- Michael Johnsen

WMS Shows CPU-NXT2(TM) - Transmissive Reels Slot Machine University Bows at G2E

WMS Gaming unveiled a variety of creative new products at the Global Gaming Expo in Las Vegas, November 14-16. A highlight of WMS' products at G2E was the latest version of the Company's WAGE-NET(TM) (Wide Area Game Enhanced Network(TM)) technology. The latest WAGE-NET server-based technology is the foundation of a networked casino environment that enables entirely new innovative forms of player experiences and game play mechanics, all based upon Player-Driven Innovation. With server-enabled technology from WMS, casino operators can remotely reconfigure games and download new content and peripheral updates to manage their slot floor from their data centers. Every WMS Bluebird cabinet with a CPU-NXT operating platform is already "WAGE-NET Ready," and will be able to facilitate remote configuration functionality with a simple software upgrade. In addition, WMS will provide multiple WAGE-NET upgrade options based on customer preference, thereby leveraging operators' investments in Bluebird cabinets and facilitating the integration of advanced technologies on casino floors. The key differentiator for WMS will be the innovative new game play available to casino patrons that can be enabled in the networked environment of server-based gaming. WMS' G2E booth featured a mini-casino of server-enabled gaming machines as well as a behind-the-scenes look at the "casino of the future." The WAGE-NET casino area of the WMS booth also included the debut of new Bluebird2 slim-line cabinets, featuring a premium edition that includes "high-definition downloadable digital glass and button panels."

"Our new server-based product offers substantial benefits to both casino operators and patrons alike," said Brian R. Gamache, President and CEO of WMS. "For casino operators, our latest technology can operate either as a stand-alone WMS server-based solution or seamlessly interface with other server-enabled systems, allowing all operators to offer exciting WMS server-enhanced products. For players, we are harnessing the greater power and unique experiences afforded by our server-enabled gaming which promises to bring new functionality like Community Gaming(TM) to create hot new product categories."

CPU-NXT2 Technology Platform

Additionally, WMS featured CPU-NXT2 technology - the next generation platform for WMS' Bluebird and Bluebird2 cabinets. CPU-NXT2 technology features a high performance Intel CPU, ATI powered 3D, real-time graphics,

enhanced BOSE audio capabilities, expanded memory and high-speed streaming video culminating in a robust operating system that performs at ten times the throughput of the average home PC. The CPU-NXT2 motherboard allows casino operators to easily upgrade their existing Bluebird cabinets and peripherals to new levels of gaming excitement through the purchase of a CPU-NXT2 upgrade.

Transmissive Reels

Combining the traditional player appeal of a mechanical reel gaming machine with the interactive and rich graphical interface of real-time, 3D visuals enabled on a CPU-NXT2 system, Transmissive Reels Gaming will flow onto the casino floor. Reflecting WMS' introduction of breakthrough technology, graphically rich video content is displayed over mechanical reels to create unique game play, visually-engaging levels of player entertainment and endless





A TFT overlay (minus the traditional lighting backplane) adds a new dimension to WMS' "Transmissive Reels."

winning possibilities. This breakthrough technology combines the best of what players love about traditional mechanical reels and video reel products. With graphically rich video, including new bonus features,



Cris Challenger (l) and Ron Parido of WMS. Cris' new project is Slot Machine University. See slotmachineuniversity.com for details.

reels, the technological advances of this platform offer a large array of potential new market opportunities for WMS and its customers. Debuting with the popular MONOPOLY licensed brand, the Super Money Grab game is

sure to be the first of many exciting new games in this revolutionary new product category from WMS.

Accelerating the future appeal of this category, WMS has licensed the rights to bring the legacy of the "Duke" to the slot floor. JOHN WAYNE(TM) DUKE IT OUT(TM) will be the next WMS product utilizing the power and appeal of Transmissive Reels technology to be introduced to the casino floor. With a mid-fiscal 2008 launch anticipated, the JOHN WAYNE DUKE IT OUT product is expected to drive further interest in what is expected to be a fast growing new product category of the slot floor.

"On their own, any one of the technological innovations that underlie these three new product categories would offer a competitive edge in the industry," said Gamache. "But only WMS, in conjunction with recognized technology leaders, has leveraged multiple cutting-edge technologies to raise the bar for a new gaming dimension by bringing to market in fiscal 2007 the first versions in all of these new product categories. Players and casino operators alike can rely on WMS for the very best in gaming both now and in the future."

JCM American Becomes First Nevada Company - Gaming Company Awarded IACET Certification

Las Vegas-based company JCM American has joined the ranks of innovative companies such as GE and IBM and universities such as MIT and Duke and has accomplished two monumental firsts: JCM has become the first company in Nevada and the first company in the gaming industry to attain certification as an IACET authorized training provider by the International Association for Continuing Education and Training.

"This is a monumental achievement," said JCM President Aki Itoi. "Since the company's beginning, continuing training for employees and our customers has been the very core of our business model, and we are honored to be awarded this strict certification. And we are very proud of our training team, led by David Kubajak, for their commitment to training and for pursuing the IACET accreditation."

JCM conducted two bill validator technical certification training courses at G2E 2006. The first-ever IACET-accredited classes took place November 15.

IACET is a non-profit association dedicated to quality continuing education and training programs. The organization grew out of a National Task Force on continuing education commissioned by the Bureau of Education (now the Department of Education) in 1968, which determined universal guidelines for continuing education and created the Continuing Education Unit (CEU). Today, IACET's Criteria and Guidelines are the core of thousands of educational programs worldwide.

The organization authorizes education providers that meet strict continuing education guidelines, and IACET certification has become the standard that

students seek as a measure of education quality.

The process of becoming an IACET Authorized Provider is extensive. Companies undergo a strict evaluation of their educational processes according to the IACET Criteria and Guidelines, including two reviews by IACET's Commission and a site visit by an IACET Commissioner.

JCM American Corporation is the industry leader in automated transaction handling systems and provides products, software and

services to the amusement, gaming, kiosk, retail, transportation and vending industries. JCM's progressive spirit continually sets worldwide industry standards with innovative and award-winning products such as the Universal Bill Acceptor (UBA®), Intelligent Cash Box (ICB®), Optipay® cash recycling system and DMV Self-service Kiosk. JCM is a subsidiary of Osaka-based Japan Cash Machine, with subsidiaries in Düsseldorf, Hong Kong, London, Macau, and Sydney. For more information, visit www.jcm-american.com.

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Ceronix Launches New Display Line

LCDs Feature Unprecedented Three-Year Warranty

Ceronix, Incorporated, well-known for over 20 years within the gaming industry for manufacturing and servicing a wide variety of custom-made, Cathode-Ray Tube (CRT) color video touch display monitors and printed circuit boards, has recently launched an entire new line of products.

Designed to be direct, “drop-in” replacements for existing upright, slant top and drop-in bar CRT monitors and LCD displays, Ceronix now manufactures a large selection of new, vibrant Liquid Crystal Display (LCD) monitors that weigh less, require less power, and are less expensive to operate than traditional CRT monitors. Of most interest to gaming technicians servicing casino machines, the new Ceronix LCD displays are not mounted on the door, therefore, making them much easier to install and service.

“We are very proud of the fact that installation of our new LCD displays requires just a few screws and five minutes of your time,” said Don Whitaker, Founder and Principal of Ceronix, Inc. “With Ceronix’s new LCD Upgrade Kit, slot techs can quickly and easily replace old and faded CRT or LCD monitors, and have in a matter of just a few minutes what looks like a brand new game! Our LCD displays are much brighter than old, traditional monitors. They make the game’s colors appear richer and more vibrant, have flat screens, and are ultimately, extremely inviting to the player. While this is great for the entire gaming industry, the LCD replacement option should be of particular interest to older casinos. For a fraction of what it would cost to replace older

games, a casino can install all new LCD displays and have an inviting new casino in less than a day!”

Ceronix has launched a wide range of LCD displays, so that the displays may fit into any and every game – regardless of size and manufacturer. Upon ordering a new Ceronix “LCD Upgrade Kit,” customers receive a fully-integrated, self-contained Ceronix LCD touch screen display and a new Injection Molded Flat Bezel. Slot machine technicians need only to “drop-in” the new Ceronix LCD display, and install the injection molded flat bezel with six screws, and the game is immediately ready for play.

Comments Harold Gillespie, Bench Tech of Harrah’s Phoenix AK-Chin Casio Resort, “It takes longer to open the machine and sign the book than it does to get that (Ceronix) LCD in!”

Ceronix Upgrade Kits are sold starting at \$560 and include both the touch screen and controller. Examples of Ceronix new LCD displays will be exhibited for customers and the public in Las Vegas in November at the 2006 Global Gaming Expo (G2E), at Booth #2370. At that time, Ceronix representatives will be available to demonstrate the product, as well as answer questions regarding the LCD Upgrade Kit, LCD replacement process, or Ceronix’s unusual three-year limited warranty for all of its LCD products.

“Our Ceronix LCD displays were designed to be the most reliable in the industry,” states Sandi Viscuso, Ceronix Operations Manager and primary customer contact when ordering Ceronix LCD Up-

grade Kits. “Our back lamps last an average of six years before needing any replacement. It’s because of this quality and dependability that we now offer a three-year warranty on all Ceronix LCD displays, which is an extra full-year of coverage over Ceronix’s already unprecedented two-year product warranty. We added that extra year because we’re so confident in our products’ consistency and excellence. Our customers know that when they buy our LCDs, they are truly getting the best product in the gaming market today!”

For further information regarding Ceronix or its new LCD line, please contact Ceronix at: (530) 886-6400, or check the company’s website at: www.ceronix.com.



Ceronix founder Don Whitaker shows Slot Tech Magazine his new snap-on bezel for touchscreen sensors. No more adhesive tape!



MultiMax

High Speed Stand-alone Device Programming System

EE Tools introduces the most cost effective high-performance Programming System to program leading high-density Flash memory and other programmable devices (such as Samsung's NAND parts) at near theoretical minimum programming times. MultiMax is a complete, stand-alone programming system, featuring a fully embedded operating system, a simple operator interface, and an ergonomic user-friendly design that minimizes process steps and maximizes performance. The MultiMax is designed to program even faster, so when Flash memories get bigger and faster, so will the MultiMax.

- Universal device support includes the latest NAND Flash Memory, Standard Flash Memory, EPROM, EEPROM, Serial PROM, and Microcontrollers
- 8-, or 16-gang programmer offers high throughput with outstanding yields
- Built-in 256 Mbit RAM buffer expandable to 1,536 Mbit
- Low voltage support down to 1.2 V
- Blank / Program / Verify 8 or 16 of 64-Mbit flash memories in 65 seconds
- Stand-alone operation with menu-driven keypad (23 keys) & 40 x 8 character LCD display
- Intelligent PC remote operation with powerful GUI software
- Stand-alone or PC operation via USB 2.0 interface for high-speed data transmission
- Supports Windows 98/Me/2000/NT/XP

MultiMax-8G	\$5,950
MultiMax-16G	\$9,950
TopMaxII	\$995
ChipMax2	\$475



ProMax

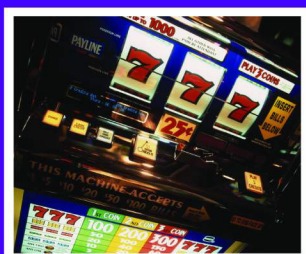
Concurrent Programming System

ProMax is the state-of-art universal programmer offers you the most advanced programming facilities for high-speed USB 2.0 PC-interface. It programs a 64Mbit flash memory in 42 seconds. ProMax supports the latest device technologies, regardless of package type.

The Gang Program Mode (Concurrent Programming Mode) can program any device and the fault-tolerant architecture allows the programmer to continue production even if one of the sockets should fail. As many as eight sockets ProMax can be controlled by a single PC with no loss of programming speed, reliability, or performance. Each programming site is completely independent of the rest and the system will completely program the first device by the time the operator has inserted the last device.

- Universal device support includes the latest NAND Flash Memory, Standard Flash Memory, EPROM, EEPROM, Serial PROM, and Microcontrollers
- Supports Windows 98/Me/2000/NT/XP
- Distribution of 16- and 32- bit data into 8-bit portions
- External START key allows production programming mode.
- Gang Program Mode allows programmers up to 8 units as concurrent programming system. (START ALL key enable to program the programmers simultaneously)
- Supports Windows 98/Me/2000/NT/XP

ProMax-4G	\$2,450
ProMax-8G	\$4,450



Other products from EE Tools: EPROM Emulator, EPROM Eraser, Single Socket Universal Programmers for USB 2.0 PC-interface (TopMaxII, UniMax, ChipMax2)

EE Tools offers customized programming algorithms at free of charge for gaming industry.

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Randy Fromm's
Slot Tech Magazine is published monthly by:
Slot Tech Magazine
1944 Falmouth Dr.
El Cajon, CA 92020-2827
tel.619.593.6131
fax.619.593.6132
e-mail editor@slot-techs.com

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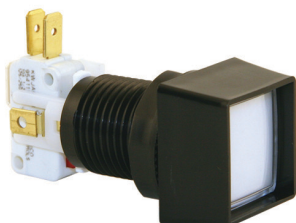
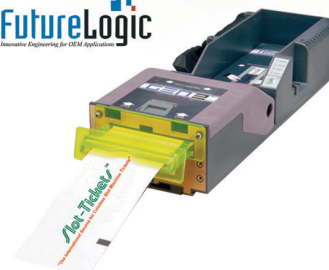
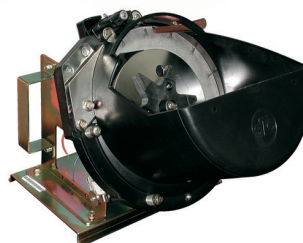
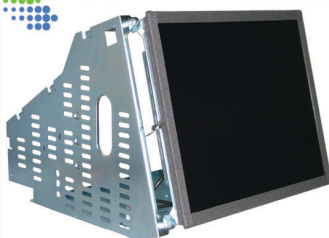
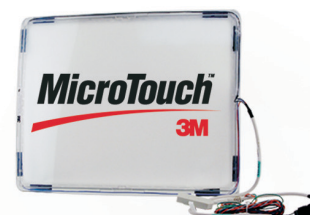
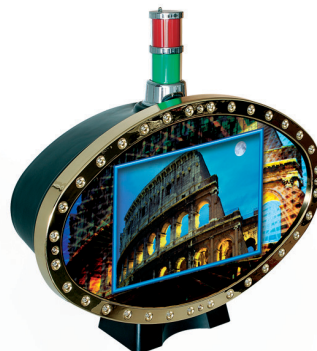
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