



## Firmware Revision Information

**Product Code(s):** *ACX048, ACX080, ACX160, ACX288, ACXC8, ACXC16, ACXC32, ACXC48, ACXC48F16, ACXC48F32, ACXC8F, ACXC16F, ACXC32F, ACXC48F, ACXC64F, ACXC80F*

**Product Name(s):** *ServSwitch DKM FX and DKM FXC Firmware*

**Date Modified:** *July 22<sup>nd</sup>, 2016*

### Version 3.01 (3-29-2016) Switch + CPU Board + I/O Cards

#### **New Features and Enhancements:**

- Full support of redundant extenders in a single matrix or matrix grid
- Single extender switching in multi-extender device
- 2<sup>nd</sup> SNMP server configuration
- 2<sup>nd</sup> Syslog server configuration
- Basic LDAP support
- Change of OSD data (color, name, about) upon request
- Echo function for media controllers in matrix grid operation
- Support of various new extender types
- Support of Russian keyboard layout in OSD
- New type of macros based on prior login
- Status request of redundancy via API
- Support of Matrix Grid Card
- Extension of SNMP monitoring for 576-Port DKM
- Extension of SNMP monitoring for redundant extender link

#### **Improvements:**

- Handling of OSD data during restart
- Modification and management of FPGA design for CPU and I/O boards
- Handling of Grid Master in Matrix Grid
- Accelerated status request in Matrix Grid
- Grid line information in Matrix Grid
- Expansion of trace / syslog for LAN related messages
- Time stamp of trace / syslog messages
- Operation in Multi-Screen control
- Video only switching in Port Mode
- Temperature monitoring on 288-Port DKM
- Handling of CPU Scanner function
- Increase of buffer size in the TCP/IP stack
- Extender requests by matrix
- Update process of I/O boards
- Macro switching via SNMP traps
- Expansion of OSD data port number
- Firmware status view
- Communication between CPU board and CATx Phytors on I/O board
- CATx Phytors and SFP control and error handling

- Registration process of newly connected extenders
- Fan and temperature control
- Startup sequence of I/O board
- Handling of matrix grid communication
- Block transfers for internal and external matrix communication established
- Establishment of network socket connections

#### **Bug Fixes:**

- Restart / Shutdown of I/O boards
- Update of I/O boards
- Handling of matrix grid communication
- Interaction with debug interface
- Configuration management upon restart
- OSD layout
- OSD list cursor
- Incorrect extender data of VCONs and VCPUs in OSD
- LDAP login
- SNMP
- DKM FX 288-Port temperature management
- Handling of extender port information
- Status request for extender ports
- Configuration of CATx Phytors during I/O board startup sequence
- Temperature Traps
- Local CPU switching of non-redundant HDMI CONs
- Downgrade Option

### **Version 3.01 (3-29-2016) Transmitters**

#### **New Features and Enhancements:**

- Switching on Dual-Head CPUs
- <Hotkey><r><h><Enter> for HID hardware reset
- <Hotkey><r><s><Enter> for HID software reset
- Various new audio codes for audio supported cards
- LOS timer in Config.txt (ENALOSTMR)
- Microphone pre-amplification in Config.txt (GAIN=X) for extenders with balanced audio transmitter module
- New DISPLAY2 parameter selects second video head channel of Dual-Head CPU unit
- Deletion of Config.txt recovers factory settings
- Versioning of Config.txt file
- New resolutions for SDI (1080p@24/25/30Hz) (CONVGPU)
- EDID change via keyboard command (VGA vs DVI) <Hotkey><V><G> (VGA) or <Hotkey><V><D> (DVI) (CONVGPU)

#### **Improvements:**

- VGA signal per default
- USB 2.0 embedded connection in Video Only mode
- Detection Dual-Head/Dual-link
- Support of 3440 x 1440 resolution
- Dithering filter ENADITHER
- Audio support in Video Only mode
- Bi-directional support of balanced audio upgrade module
- Automatic cutting of EDID extension block

- Updated improved
- Manual extender update form Windows 8 computers
- Differentiation of EDIDs
- EDID Transmission (CONVGPU)
- Scaling (CONVGPU)

#### **Bug Fixes:**

- Service Mode via backplane
- EDID transmission of redundant extenders
- USB 1.1 support of USB 2.0 embedded upgrade modules
- Digital Audio parameters for redundant CPUs
- USB 1.1 support of USB 2.0 embedded upgrade modules
- RAM timing (CONVGPU)
- Saving of image settings (CONVGPU)
- Minor Bug Fixes (CONVGPU)

### **Version 3.01 (3-29-2016) Receivers**

#### **New Features and Enhancements:**

- Switching on Dual-Head CPUs
- <Hotkey><r><h><Enter> for HID hardware reset
- <Hotkey><r><s><Enter> for HID software reset
- Support of USB-HID Ghosting and EDID management through the matrix
- Microphone preamplification in Config.txt 9GAIN-X) for extenders with balanced audio transmitters

#### **Improvements:**

- Audio signal on both links available (redundant link extenders)
- USB 2.0 embedded connection in Video-Only mode
- Compression control
- Timing for memory control
- Detection Dual-Head/Dual-link
- Support for 3440x1440 resolution
- Bidirecitonal support of balanced audio upgrade module
- Update improved
- Manual extender update form Windows 8 computers
- Differentiation of EDIDs

#### **Bug Fixes:**

- Parameter RELEASETIME=X
- RAM timing (EXTICPU)
- EDID transmission of redundant extenders
- Audio transmission on HDMI (EXTHRCPU)
- Digital Audio parameters for redundant CPUs
- USB 1.1 support of USB 2.0 embedded upgrade modules

## Version 4.01 (3-29-2016) USB HID

### New Features and Enhancements:

- <Hotkey><r><h><Enter> for HID hardware reset
- <Hotkey><r><s><Enter> for HID software reset
- Port deactivation in Multi-Screen Control (ACX1004 / ACX1008)
- Support of Logitech K400 keyboard
- Support of Logitech MK220 keyboard/mouse
- Support of various touchscreens for KVM sharing
- Expanding of favorites in port mode to 254
- Support of Raspberry Pi
- Support of 32 macros in a matrix
- Freely configurable MultiScreen Control (ACX1004 / ACX1008)
- Support of new X-Key generation

### Improvements:

- MultiScreen control with identical mice
- Support of Logitech unifying Receiver
- Key buffer timeout
- Wake up of computers from sleep mode
- Boot process of ACX1004 / ACX1008
- Handling of multi interface devices
- Acceleration in MultiScreen control
- Change of polling interval
- Handling of multi-interface keyboards
- Control of keyboard LEDs
- Fixed assignment of K/M to dedicated hub ports
- Support of horizontal scrolling of Apple mice in USB HID Ghosting
- Secure transmission of data packages
- Pointer handling in Red Hat and CentOS
- Handling of hubs for 3<sup>rd</sup> party USB switches
- Support of keyboard with mouse interface
- Support of EloTouchscreens for shared control

### Bug Fixes:

- Switching of ACX1004 / ACX1008
- Operation of MultiScreen control
- Port arrangement of MultiScreen control (ACX1004 / ACX1008)
- Deactivation of ports (ACX1004 / ACX1008)
- Start of recovery console of Mac computers
- Handling of absolute mouse reports
- Converter OSD shut down
- OSD control in cascaded environment
- Mouse handling as a combined device
- ACX1004 / ACX1008 arrangement 2x4 in MultiScreen control corrected

## Version 3.01 (8-10-2015)

### New Features and Enhancements:

- Full Redundancy Support
- System – Network: Support of second syslog server and configurable syslog port
- System – Network: Support of a second SNMP trap receiver

- System – Network: Support for LDAP (simple)
- Support of SNMP – board
- Network Check: Check availability of FTP, API and SYSLOG connections and ports
- Endpoints: Completely new USB code on all endpoints, not compatible with earlier versions as 100% of the USB code has been overhauled to support newer computers and USB devices.

#### **Improvements:**

- Master handling in Matrix Grid
- Port handling of fixed port extenders (USB 2.0)
- Time monitoring for LAN module
- Handling of LAN sockets
- Update of redundant extenders
- Update of KVM switching status for extenders on I/O board
- CPU connection info on redundant extenders
- Handling of OSD in Multi-Screen Control environment

#### **Bug Fixes:**

- Definition – User: Fixed blocking UI when creating a new User
- Definition – EXT Units: Prevention of various exceptions
- Switch Communication: Fixed error in LAN Echo Management

### **Version 3.00 (12-5-2014)**

#### **New Features and Enhancements:**

- New video mode 1680x1050 in OSD
- Update of DVI-I CON units (EXTICON)
- CPU Connection info upon keyboard/mouse event in Video Only or KVM sharing mode
- Synchronized switching for operations consisting of multiple commands
- Support of various new extenders types
- Support of new range for serial numbers of extenders

#### **Improvements:**

- Master handling in Matrix Grid
- Port handling of fixed port extenders (USB 2.0)
- Time monitoring for LAN module
- Handling of LAN sockets
- Update of redundant extenders
- Update of KVM switching status for extenders on I/O board
- CPU connection info on redundant extenders
- Handling of OSD in Multi-Screen Control environment

#### **Bug Fixes:**

- Synchronization of system data in Matrix Grid
- OID definition corrected (SNMP)
- API handling of invalid CPU devices
- CPU selection in OSD
- Fix frame on second of redundant extenders
- Search focus in CPU selection List

### **Version 3.00 (11-24-2014)**

- Completely revised USB HID code to resolve several issues and add new hotkeys to either hardware / software reset the USB stack. Hotkeys would include **hotkeys, R, S, Enter** (software reset) & **hotkeys, R, H, Enter** (hardware reset).
- Software Reset: if data channel is operating between TX and RX
- Hardware Reset: sent via the video connection
- Matrix Grid bug fixes

#### **Known Issues:**

- DKM solution will not support redundant link modules yet (stand alone or in matrix grid mode)
- When using a Mac OS, be sure to ghost the Mac keyboard into the transmitter to emulate correct keyboard device

### **Version 3.00 (8-21-2014)**

#### **New Features and Enhancements:**

##### **MATXCPU**

- Automatic restart of replacement CPU board activating previous network settings
- <F6> key status and sort mode for CPU selection list are saved
- Default Device IDs set to 1001, 2001, 3001 and 4001
- Support of X-Key Stick (16 keys) to activate macros on the matrix

#### **Improvements:**

##### **MATXCPU**

- Local KVM switching
- Switching of USB 2.0 extenders
- Multi-Screen Control switching
- Update time for standard extender update reduced
- Release timer for Mouse/Keyboard Connect
- Management of Matrix Grid configurations
- Connection handling for switching in Matrix Grid
- Handling of status requests
- Date and time stamp of Syslog messages
- Echo function adjusted to socket management
- Operation of network stack (VRRP)

#### **Fixed Bugs:**

##### **MATXCPU**

- Restart process of Matrix Grid
- Identification of extenders during restart
- Switching of CON IDs via API
- Handling of broadcast messages (network)

### **Version 3.00 (7-2-2014)**

#### **New Features and Enhancements:**

##### **MATXCPU**

- Automatic restart of replacement CPU board activating previous network settings
- <F6> key status and sort mode for CPU selection list are saved
- Default Device IDs set to 1001, 2001, 3001 and 4001
- Support of X-Key Stick (16 keys) to activate macros on the matrix

#### **Improvements:**

##### **MATXCPU**

- Local KVM switching

- Switching of USB 2.0 extenders
- Multi-Screen Control switching
- Update time for standard extender update reduced
- Release timer for Mouse/Keyboard Connect
- Management of Matrix Grid configurations
- Connection handling for switching in Matrix Grid
- Handling of status requests
- Date and time stamp of Syslog messages
- Echo function adjusted to socket management
- Operation of network stack (VRRP)

#### **Fixed Bugs:**

##### **MATXCPU**

- Restart process of Matrix Grid
- Identification of extenders during restart
- Switching of CON IDs via API
- Handling of broadcast messages (network)

### **Version 3.00 (4-9-2014)**

#### **New Features and Enhancements:**

##### **MATXCPU**

- Automatic CPU failover for redundant setups implemented
- Matrix Grid for bidirectional connection of multiple KVM matrices via Grid Lines
- Update of converter firmware (CONVGPU) for DVI-I CPU Units included
- Update process for Dual-Link/Dual-Head extenders in standard mode included

#### **Improvements:**

##### **MATXCPU**

- OSD communication between the KVM matrix and extenders improved
- Memory management during update process improved

#### **Fixed Bugs:**

##### **MATXCPU**

- Handling of Local CPU switching corrected
- Telegram handling for various functions corrected

### **Version 2.11 (12-4-2013)**

#### **New Features and Enhancements:**

##### **MATXCPU**

- OSD fixed resolution format 1280x800 added for Dual link support
- New API commands for CPU, CON and User status
- Local switching support for Universal I/O boards implemented

**Improvements:****MATXCPU**

- LOS\_FRAME and FIX\_FRAME data are properly updated in case of switching via Extender OSD
- Connection Info update now waiting for execution of switching command
- Connection Info update will only indicate connection changes
- Switch & Macro Command Connect Video will now overwrite existing Full Access connection
- New terminology in System Data menu for Sync and Sub Matrix modes
- Handling of matrix ports for cascading improved
- Internal switch communication and boot process of IO boards accelerated
- Additional sanity check of boot images

**Fixed Bugs:****MATXCPU**

- Switching in CPU selection menu in conjunction with Sharing and Connect active could lead to automatic return to previous connection
- Sort function and update function in case of empty lists in OSD corrected
- USB switch command detects switch events also on CON side
- Video only connection could overwrite disabled video sharing. Video sharing is now blocked correctly in such cases.
- OSD behavior in case of disconnect command corrected
- API commands regarding switch status corrected

**Version 2.10 (9/4/2013)****New Features and Enhancements:****MATXCPU**

- System option Echo Only allows mutual synchronization of two switches with redundant extender configuration
- CON devices may now switch in Port Mode, directly addressing specific matrix ports by <Hotkey><##>, where <##> can be any single or two digit number. If Port Mode is enabled, CON Favorites are not supported
- OSD Support for HDMI CON switch units with Local CPU support, even if connected to a local CPU
- New extender types included in update function
- USB 3.0 support added

**EXTCPU/EXTCON**

- Improved communication between extender and Matrix (requires MATXCPU V2.10 dated 2013-07-11 or later)
- Redundant (dual-port) CON units support switching between two CPU units
- HDMI CON switch units support switching between KVM ports and local CPU ports via hotkey or matrix OSD
- HDMI CON switch units support local loop-through of analog audio
- HDMI CON units support embedding of digital audio into HDMI output
- CON units support splitting of HDMI digital audio signals to digital audio output modules

**HIDCPU/HIDCON**

- KeyRepeat function for OSD menus implemented
- Device handling at USB hubs improved
- Compatibility with various DVI switches

**Improvements:****MATXCPU**

- Verification of USB 2.0 connections
- I/O board syslog suspended during updates
- Flash memory management optimized
- Timeout for I/O board registration increased

## Version 2.10 (7/4/2013)

### New Features and Enhancements:

- System option Load Default allows to boot with default configuration rather than with the last active configuration
- CPUs in Private Mode are listed in red color
- Extender OSD shows information about shared access

### Improvements:

- <F8> key status is now stored
- Private Mode only CPUs can be selected by <ENTER>
- User login included in Trace and Syslog
- CPU selection list shows key codes

### Fix Bugs:

- IO boards with invalid firmware are shutdown even before registration has been completed
- Former configurations are properly converted
- Time stamp in Trace is displayed correctly

## Version HIDCPU HIDCON (7/11/2013)

### New Features and Enhancements:

- CON access of Video converter OSD by <Hotkey><v>
- CON switch between KVM connections and local PC function by <Hotkey><k><1>, <Hotkey><k><2> and <Hotkey><I>

## Version EXTCPU EXTCON V2.28/V2.29 (7/5/2013)

### New Features and Enhancements:

- RS232/RS422 support at 115 kBaud and audio support
- Audio and Serial TX/RX compatible between RS232 and RS422 modules
- CON units can convert any 1090P signal to 50Hz (requires parameter "1080p50Hz" in config.txt)
- CPU units support HID access to Video converter OSD
- Redundant units support matrix communication on both ports
- Redundant CPU units support shared access from two CON units (see manual for config.txt parameters)
- HDMI units support HDCP on local ports
- USB embedded signal disabled during local access

## Version EXTMSD V2.29 (6/11/2013)

### New Features and Enhancements:

- New EDID with 1080p default for DVI and HDMI
- New EDID supports 2-ch PCM audio for HDMI
- Parameters "1080p50Hz" and "PRIVATEACCESS" added
- Parameters for shared access to redundant CPU unit added

## Version CONVGPU CONVPGA CONVMSD V1.30 (6/11/2013)

### New Features and Enhancements:

- Default conversion modified to 1:1 transmission
- Support of HID access to Video converter OSD added

## Version MATXCPU V2.10 (2/25/2013)

### New Features and Enhancements:

- Multi-Screen Control allows seamless switching between up to four consoles simply by moving the mouse across the monitors or using hotkeys (numeric keypad 0-4). Optionally, the new screen is marked up by an orange frame overlay to the video signal
- SNTP time server support implemented
- CPU Scan mode added to connection options
- SNMP service extended; traps can be activated individually
- Full support of Master/Slave mode for matrix interconnections

### Improvements:

- <F8> key in CPU menu toggles between all or active CPUs only
- User can log in or log out from Extender OSD or Main Menu by <F10> key
- OSD can be closed by <ESC> key from Main Menu
- Admin user is automatically logged out when leaving the OSD
- Current user login is restored after using a special account for configuration or extended switch changes (Admin, super, power)
- Extender OSD revised (Connection info and CPU selection can be configured separately)
- Serial numbers for IO boards and backplane are transmitted to Javatool
- OSD Video Mode 1920x1200 added
- OSD Keyboard Layout French (CH) added
- IO boards with an older firmware status than the CPU board shut down automatically upon insertion, without causing a matrix freeze
- Switching stability of direct USB 2.0 connections improved; in Shared Mode, a release time of 10 sec. is required to fulfill USB 2.0 protocol requirements imposed by the computer OS.

### Fixed Bugs:

- Extender or device IDs cannot occur twice
- Extended switch function in OSD is always available

## Version MATXOSD MATXOSL V2.27 (2/28/2013)

### New Features and Enhancements:

- Multi-Screen Control support added

## Version HIDCPU HIDCON (2/28/2013)

### New Features and Enhancements:

- Multi-Screen control support added

### Improvements:

- <Print> key added to fast OSD access single key options
- Keyboard leaves command mode after 10 seconds of inactivity

### Fixed Bugs:

- HID Ghosting support for certain device classes added
- <Return> and <Enter> now works similarly in command mode

## **Version EXTCPU EXTCON V2.25 (2/26/2013)**

### **New Features and Enhancements:**

- Multi-Screen control support added
- Video Mode detection for autodesk applications
- RS422 module detection and support
- HDMI extender and local access support
- Redundant extender support

### **Improvements:**

- LOS Frame and hold picture function improved
- EDID transmission in case of monitor sleep mode improved
- Boot behavior improved

### **Fixed Bugs:**

- HOLDPIC function corrected
- Analog audio switch noise reduced

## **Version CONVGPU CONVPGA CONVMSD V1.20 (2/04/2013)**

### **New Features and Enhancements:**

- New naming convention for FW files implemented
- Serial control support (RS232)
- Support for flags in config.txt on flash drive

### **Improvements:**

- IR RC support improved
- No Sync display independent of input type

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## **Version 2.9 (11-5-2012)**

### **New Features and Enhancements:**

- License management implemented
  - Firmware update now overwrites the older firmware version (default)
  - Current firmware can be overwritten on demand to return to former firmware status
  - Distributed firmware update of extenders via IO boards
  - Number of Favorites increased to 16
  - Internal switching on IO boards
  - New user type "Super user" can access and switch all CPUs but cannot change configuration
  - FIX Frame option for CPU devices adds a semi-transparent colored frame to the video
  - Trace revised to syslog format and memory increased
  - Initial support of Syslog service
  - Basic support of SNMP service
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- Admin account is always closed upon leaving the OSD
- Matrix serial number implemented
- Macros offer simplified Push/Get functions

**Improvements:**

- Fan management improved
- Embedded OSD revised (Location, Display time, enable, update)
- Function *Auto Logout* can be disabled (“-1”)
- Private access is now a property of the CPU device and is also supported by Macros and Favorites
- Macros verify access rights before execution
- Function *Reset Matrix* renamed to *Factory Reset*
- Function *DKM Service* renamed to *API Service*
- Error behavior of LAN socket improved
- Configuration options for OSD console at CPU board added

**Fixed Bugs:**

- “Previous” Shortcut now verifies current access rights
- Video only attribute is now reset in all cases
- Only one CON can control a CPU at the same time

**Version MATXOSD 2.25 (10-15-2012)**

**New Features:**

- Added internal switching (on board)

**Fixed Bugs:**

- Fixed communication to Extender OSD
- Fixed Extender update problems

**Version MATXHID, HIDCPU, HIDCON (11-5-2012)**

**New Features and Enhancements:**

- HID Ghosting support. Reference HID devices can be initialized, enabled, disabled and removed by hotkey commands

**Improvements:**

- Hotkey and OSD Shortcut can now be defined by the user and can be reset to default during power cycle
- Mac boot menu supported
- Auto repeat keyboard support for OSD mode
- Special support of X-Keys removed

**Fixed Bugs:**

- USB wake up could enable Key Lock

**Version EXTCPU, EXTCON (11-5-2012)**

**New Features and Enhancements:**

- FIX Frame option for CPU devices adds a semi-transparent colored frame to the video
- Bidirectional Digital Audio support

**Improvements:**

- Embedded OSD revised (Location, Display time, enable, update)
- EDID update can be disabled
- Flash drive shows Serial no.

**Version MATXCPU 2.8 (7-20-2012)****New Features and Enhancements:**

- Implementation of general purpose Fixport extenders

**Version MATXCPU 2.8 (3-20-2012)****Improvements:**

- Update of EXT unit properties in case of module revisions implemented.
- Function *AutoDisconnect* improved.
- Function *CPU Timeout* improved.
- Number of Extender-ID Requests increased.
- Initialization of external OSD improved.