

90000

JunglePAX – Release Notes

Firmware Package p/n 90000-01
Version: 1.20.30707
Release Date: June 4th, 2021
Type of Release: Production Release

Lentronics JunglePAX



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RELEASE SUMMARY

REQUIREMENTS

- A networked PC with access to the JPAX subnet
- Web-browser (latest version of Chrome, IE or Firefox)
- Terminal session. Putty.exe
- Advanced NMS (p/n 90000-50, -50/G, -51, -50/G) versions 8.3.2, 8.4.5 or 8.5.0

DOCUMENTATION CONTROL

Document Version 1.00	PR 1.20.30707	June 04 th , 2021
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PRODUCT/COMPONENT

This production firmware release is comprised of numerous individual firmware components packaged together and distributed as a controlled JunglePAX part number 90000-01. The overall product structure, including hardware and firmware contains the following sub-components

JPAX Firmware Package 1.20.30707

- CHASSIS, p/n 90001-01
 - Comprised of Backplane, daughter-card and mechanical
- CORE Module, p/n 90010-01

NMS	jpax_nms.itb	version=1.20
DP	jpax_dp.itb	version=1.20
FPGA	jpax_fpga.itb	version=1.20
UBOOT	jpax_uboot.itb	version=1.07

- ACCESS CARDS

EF-4A	ac9020001.bin	version=2.01.16
EC-4A	ac9020101.bin	version=2.01.11
T1E1-4A	ac9030002.bin	version=2.01.08
CBUS-4A	ac9030101.bin	version=2.01.08
C3794-1A	ac9036001.bin	version=2.01.15
C3794-4A	ac9036002.bin	version=2.01.15
C3794-1A-FPGA	af9036001.bin	version=1.13
C3794-4A-FPGA	af9036002.bin	version=1.13
DR-1A	ac9035001.bin	version=2.01.03
DR-4A	ac9035002.bin	version=2.01.03



DR-1A-FPGA	af9035001.bin	version=1.08
DR-4A-FPGA	af9035002.bin	version=1.08
G703D-4A	ac9036601.bin	version=1.00.00
G703D-4A-FPGA	af9036601.bin	version=1.03
DTT-2A-01	ac9034101.bin	version=1.14.00
DTT-2A-03	ac9034103.bin	version=1.14.00
DTT-2A-05	ac9034105.bin	version=1.14.00
DTT-2A-01-FPGA	af9034101.bin	version=1.06
DTT-2A-03-FPGA	af9034103.bin	version=1.06
DTT-2A-05-FPGA	af9034105.bin	version=1.06
XTDM-8A	ac9030801.bin	version=1.00.07
XTDM-8A-FPGA	af9030801.bi0	version=1.05
AC_BOOT08	ab90xxx08.bin	version=1.09.00
AC_BOOT50	ab90xxx50.bin	version=1.09.00
AC_BOOT24	ab90xxx24.bin	version=1.02.03

CORE UNIT DATA PLANE FIRMWARE

The data plane firmware provides the real-time operating environment responsible for the real-time components of the JPAX system and where all the time critical functionalities are implemented, including:

- data path configuration
- data path status monitoring
- alarm monitoring and reporting
- hardware drivers and control
- inter-core operation
- system initialization
- inventory
- node health status
- logging and event notification

The data plane is comprised of critical interfaces and associated systems that affect the flow of data within a JunglePAX node (Inter-core configuration and monitor) and across a JunglePAX network, including the CBUS Interface, TDM packetizer, MPLS capable switch, FPGA, Power Supply, DPLL, SFP status, alarm control and status, access unit control, and system logging functionality.



CORE UNIT MANAGEMENT PLANE FIRMWARE

The management plane firmware provides embedded management environment responsible for management plane functionality of the JunglePAX including:

- Configuration
- Alarm logging
- Status reporting
- Transaction and Session Management
- Security, including role-based access control
- Firmware upgrades
- Network discovery and remote management

The NMS is comprised of functional modules including the ConfD Infrastructure, Applications and Daemons, and the Interfaces that support the configuration of, and status/alarms-reporting from, the RTOS Components, which are also referred to as the Data Plane Components.

A JunglePAX model is created through the YANG modelling language and incorporated into the code build. The ConfD compilation infrastructure creates the north-bound interfaces (Netconf, CLI, HTTPS and SNMP). SNMP is not currently supported in this release. Each parameter set/get request is sent to the ConfD server, which will pass it via an Application or Daemon (often referred to as a Data Provider) to the Data Plane. The Data Provider uses functions in the Interfaces to send the requests to the Data Plane.

For this release of the NMS, access to the JunglePAX is via the **webui (aa.bb.cc.dd)**, where **abcd** represent the IP address of the locally connected CORE module. This release supports local and remote unit access, with remote navigation provided by a Network node list. Access to either left or right remote CORE units is offered through the network node list.

Physical access to the embedded manager is provided through the TOP NMS port (RJ-45) on either left or right CORE modules.

Access to the Command Line Interface (CLI) is accessible via the webUI interface by pressing the CLI button or using an SSH client like PuTTY on the standard SSH port 22. Connect to the IP address of the CORE unit. The advantage of the SSH client is better window size flexibility and text handling like pasting scripts.



CORE UNIT BOOTLOADER

The Core Unit Bootloader controls the boot process of JPAX. It is responsible for the following:

- Loading factory firmware images from TFTP or SD card
- Extracting/Verifying and Booting NMS and DP firmware images
- Extracting/verifying/flashing FPGA images to serial flash
- Configuring system memory map for all peripherals
- Storing default MAC addresses, default IP settings and factory calibration settings
- Low-level system debugging support

ACCESS UNIT FIRMWARE

The access unit firmware for the microprocessor consists of two parts: the bootloader and the user application. There are different user applications to support the nine types of access units

- 4-port Ethernet Optical (SFP),
- 4-port Ethernet Copper (RJ-45),
- T1/E1,
- CBUS,
- xTDM,
- 1 & 4-port C37.94
- 1 & 4-port Direct Relay unit supporting RS232 (up to 4 ports) and G.703 (1 port)
- 4-port G.703, and
- 48/130/250VDC Direct Transfer Trip modules



RELEASE DETAILS

SUMMARY - NEW FEATURES (1.20)

GE's JunglePAX is a purpose-built optical packet switched solution that's hardened through layers of redundancy for secure and dependable utility communications. This production release of the CORE units' firmware introduces a variety of new product features and fixes with the major items summarized below. The complete list is included along with their JIRA (issue tracking) number. Where a detailed description of the issue is required, please contact GE with the JIRA number.

Firmware version 1.20 new feature

1. Added support for xTDM-8A unit (p/n 90308-01)

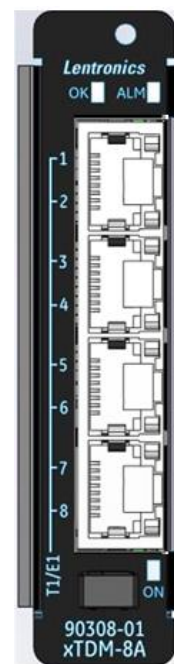
The xTDM-8A card is a JunglePAX access card providing 8 T1/E1 ports. Each of the four connectors supports two T1/E1 ports. For odd ports (1, 3, 5, 7), standard RJ-48c pinout is used. Access to even ports (2, 4, 6, 8) requires use of splitter cables providing 2 x RJ-48c connectors. Alternatively, a DIN-mounted splitting adapter can be used.

The xTDM-8A card is equipped with an onboard packetizer and supports transport of up to 8 bulk T1/E1 services over MPLS (SAToP) when installed in slots 1-7, 13, 15 of the 90001-01 JunglePAX shelf. This functionality is referred to as TDMoP mode.

The unit is end-to-end compatible with T1E1-4A cards.

The unit's hardware is ready to support the following features in future firmware releases:

- Transport of bulk T1/E1 services over the SONET/SDH transport layer (available on JunglePAX hybrid WAN ports) if installed in slots 8-12. This is referred to as TDMoS mode and it will allow for
 - Minimal (SONET/SDH-like) end-to-end delay and delay asymmetry
 - Routing of bulk T1/E1 services to remote JungleMUX and TN1U/TN1Ue nodes
- Support of Nx64 kb/s services originated on T1/E1 ports
 - In TDMoP mode, the Nx64 kb/s services will be individually routable to remote JunglePAX or JungleMUX nodes, or they can be locally hairpinned.
 - In xTDM-S mode, the Nx64kbps services originated on a given T1/E1 port will be carried in the same VT/TU12 to a remote JunglePAX or JungleMUX node where they can be individually dropped at various access ports.
- Support for 1+1 redundant configuration if two cards are installed in adjacent slots. In this configuration, use of (additional) splitter cables will be required.





KNOWN LIMITATIONS

The following is a list of known limitations related to JPAX firmware package 1.20.30707

xTDM-8A

Case	Title	Severity
JXKSO-3172	xTDM: Jitter Buffer Underrun alarms and warnings can be persistently declared for p2p-bulkt1e1 services	Normal
JXKSO-3168	xTDM: Pre-existing bundle configurations may not be deleted from xTDM EEPROM when ports are not used in new configuration (configuration replay)	Normal
JXKSO-3134	xTDM: Traffic Errors for standalone T1MX using Adaptive Recovery Output Clock Mode	Normal
JXKSO-3121	xTDM: P2P-BulkT1E1 services is missing Output status	Normal

OTHERS

Case	Title	Severity
JXKSO-3176	WebUI + CLI: Bundle diagnostic alarms are displayed as "warning" instead of "Alarm"	Normal
JXKSO-3107	WebUI: LAN Interface Traffic Monitor "Clear All", "Clear Peaks" button doesn't do anything when clicked	Normal
JXKSO-3094	iDS0: Inserted iDS0 Access Cards must clear their configurations when installed in unprovisioned or mismatched iDS0 slot configurations before traffic flow is allowed	Normal
JXKSO-3093	iDS0: Pre-existing configurations in an iDS0 Access Card do not get cleared in slots that have a different iDS0 Access Card offline configuration	Normal
JXKSO-3079	E1 PRBS Sync Status does not update on channels higher than Ch.24	Normal



RESOLVED LIMITATIONS

The following is a list of limitations that have been resolved

Case	Title	Severity
JXKSO-1184	WebUI: Can no longer delete/remove more than 1 entry at a time	Normal
JXKSO-1343	Reduce allowed range for Node#, Group # and Node Name	Normal
JXKSO-1496	HEE Default L/R-Front-Freq-Input values are 15 when VxWorks is set for None	Minor
JXKSO-1520	Shared Secret is exposed as plain text when logging in as Operator in WebUI	Minor
JXKSO-1523	Cannot delete Local and RADIUS Users through WebUI	Normal
JXKSO-1538	WAN port Force RX SSM values other than None and DUS for Normal timed nodes do not take effect over the companion link	Minor
JXKSO-1597	Additional WAN port SFP alarms	Normal
JXKSO-1689	iDS0: iDS0 Access cards should be deprovisioned when inserted into an unprovisioned slot	Normal
JXKSO-2149	Remove 1:1 protection under SONET/SDH transport layer	Normal
JXKSO-2251	Interfaces: EF-4A Ethernet Setup field size and alignment	Minor



JXKSO-2460	MP-Ethernet -> PW popup -> QoS tab (CIR)	Normal
JXKSO-2612	LOS SSM Values are not reported correctly	Normal
JXKSO-2647	Traffic Monitor: "Priority Stats Available" counter does not update consistently	Normal
JXKSO-2648	QoS: ColorAware mode can't differentiate incoming yellow/green packets	Normal
JXKSO-2690	CBUS TDMoS current MUX displays 1 on both sides	Normal
JXKSO-2708	Cannot configure p2p-nx64k service if transport-layer is not explicitly set	Minor
JXKSO-2740	DTT f/w upgrade via package occasionally causes AC to fail sanity check	Normal
JXKSO-2755	Companion sync with blank core card can prevent auth_mgr from initializing properly	Normal
JXKSO-2785	Rebooting CC Flushes Distribution Status Information	Normal
JXKSO-2788	Distribution Can Be Started From Multiple Primary Gateways	Normal
JXKSO-2831	Unable to monitor one PW direction for High PLR	Normal
JXKSO-2856	WebUI: Selecting "All" for a P2P-Nx64k service's channel selection may cause visual bugs in the channels table	Minor



JXKSO-2857	Alarms generated from Tx break display OK under WAN table	Minor
JXKSO-2868	High Tx and Rx PLR both reported as High PLR under services table	Minor
JXKSO-2881	Cannot companion sync VT CDROP configurations	Normal
JXKSO-2886	Inconsistent behaviour of stitched MPLS tunnel VT CDROP configurations	Normal
JXKSO-2897	Cannot stitch VTU CDrop to desired MPLS tunnel	Normal
JXKSO-2898	Issuing Tx Test byte for a VTU CDrop results in VTU-AIS and inconsistent Test Byte Operation	Normal
JXKSO-2902	In cdrop configuration, vt_drop_nextavail command is generated on the wrong core card in certain cases	Normal
JXKSO-2920	Sync-In Unit: Force Rx SSM (SONET/SDH) configuration parameters may not be in accordance to the WebUI spec	Minor
JXKSO-2921	Sync-In Unit: Sync-In Freq configuration parameters state the frequency with an "External:" prefix and display 1.544 MHz option	Normal
JXKSO-2923	Sync-In Unit: Clock Source does not report L1...L6 or R1...R6	Normal
JXKSO-2932	Sync-In Unit: "Loss of Signal" is not reported in WebUI, ems_cli reports "present" and Alarm Engine as "Sync-In Freq LOS"	Normal
JXKSO-2933	Reference Frequency Inputs and Reference Frequency Outputs accordions in WebUI/ems_cli do not display the appropriate Rx SSM, Force Rx SSM, and Tx SSM formatted values	Normal



JXKSO-2945	Issuing Tx Test byte for a VTU CDrop result in the disabling of the stitched tunnel in VxWorks	Normal
JXKSO-2946	Configuration of CDrop VTU initially results in a healthy VTU status for paths that are not healthy	Normal
JXKSO-2948	Deleting stitching configuration for either a CDrop or non-CDrop configuration does not clear the associated tunGid from vt_tunnel_volt_show	Normal
JXKSO-2963	Sync Unit inventory parameters shall display '-' when no Sync Unit equipped	Normal
JXKSO-2965	Editing a vt tunnel from cdrop to drop and visa versa doesn't work	Normal
JXKSO-2983	Attempting to upgrade FW on an Access Card with corrupted application FW using the "Upgrade Firmware" process will fail	Normal
JXKSO-2989	Traffic Monitor: LAN enabled without priority stats displays incorrect values for most parameters	Normal
JXKSO-2990	WebUI/ems_cli: Unhealthy VTUs inconsistently displayed when WAN LOS	Normal
JXKSO-3001	Unsuccessful login attempts to WebUI/ CLI should be logged	Major
JXKSO-3004	Missing VTU BER monitor and High BER alarm	Normal
JXKSO-3008	Cannot initiate Upgrade Firmware of Access Cards while Core Card is in Upgrade Completed state	Normal
JXKSO-3040	WAN port displays OK when its SFP is missing	Normal



JXKSO-3076	T1E1 PRBS Insert Error causes Application Communication Failure	Normal
JXKSO-2856	JXKSO-2856 WebUI: Selecting "All" for a P2P-Nx64k service's channel selection may cause visual bugs in the channels table	Minor

Note *1: The hybrid networks must load JIF-Share M2 or CDAX units with 2.04c and 3.12f firmware respectively for those units whose VTs face an Evolution Unit.

Note *2: For stitched conversion services, the JMUX VT cards must use SOY as the switching mechanism is now VT-RDI.

Note *3: A VistaNET 5.12.17159 patch is required to properly support a programmable Evolution Mode for CDAX (3.12f) and JIF-Share M2 (2.04c).

Note *4: JMUX Evolution Unit must be upgraded to Version 2.00b.

ENGINEERING RULES ASSOCIATED WITH JUNGLEPAX OPERATING MODES

GE allows for a mixture of firmware release 1.14a, 1.16d/e, 1.18, 1.18a/b and 1.20 in the same network; however, network visibility is compromised when running multiple different firmware versions in the same network. Traffic is expected to work but GE can't guarantee highest performance when configured across differing firmware.

Ideally, all nodes within a JunglePAX network should be running the same firmware package.



FIRMWARE UPGRADE PROCEDURE

Contact GE technical support team for instruction on upgrading the unit firmware. There is currently no cost to customers to upgrade their JunglePAX firmware to release 1.20.

CONTACTS

For additional details or technical assistance, you may contact:

Customer Technical Service

Burnaby, BC Canada

Phone: 1-604-421-8610

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