

90000

JunglePAX – Release Notes

Firmware Package p/n 90000-01
Version: 1.18a.29618
Release Date: December 18th, 2020
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 or 8.5

DOCUMENTATION CONTROL

Document Version 1.00	PR 1.18.29618	December 18 th , 2020
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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 1.18.29263

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

NMS	jpax_nms.itb	crc=3751D530	version=1.18a
DP	jpax_dp.itb	crc=F9944F22	version=1.18a
FPGA	jpax_fpga.itb	crc=4A33E9C6	version=1.18
UBOOT	jpax_uboot.itb	crc=84BBABF8	version=1.07

- ACCESS CARDS

EF-4A	ac9020001.bin	crc=0A2294FA	version=2.01.16
EC-4A	ac9020101.bin	crc=F23DE760	version=2.01.11
T1E1-4A	ac9030002.bin	crc=A3AF5C9A	version=2.01.08
CBUS-4A	ac9030101.bin	crc=70F85CD2	version=2.01.08
C3794-1A	ac9036001.bin	crc=BEEE108C	version=2.01.15
C3794-4A	ac9036002.bin	crc=E15B293B	version=2.01.15
C3794-1A-FPGA	af9036001.bin	crc=5C91D5CA	version=1.13
C3794-4A-FPGA	af9036002.bin	crc=5C91D5CA	version=1.13
DR-1A	ac9035001.bin	crc=52A5DFF3	version=2.01.03
DR-4A	ac9035002.bin	crc=EB01E28D	version=2.01.03



DR-1A-FPGA	af9035001.bin	crc=4F5ED83A	version=1.08
DR-4A-FPGA	af9035002.bin	crc=4F5ED83A	version=1.08
G703D-4A	ac9036601.bin	crc=983ABC51	version=1.00.00
G703D-4A-FPGA	af9036601.bin	crc=AE542A8A	version=1.03
DTT-2A-01	ac9034101.bin	crc=7D69753C	version=1.14.00
DTT-2A-03	ac9034103.bin	crc=CCA0923A	version=1.14.00
DTT-2A-05	ac9034105.bin	crc=CEB822DD	version=1.14.00
DTT-2A-01-FPGA	af9034101.bin	crc=ADDD0F94	version=1.06
DTT-2A-03-FPGA	af9034103.bin	crc=ADDD0F94	version=1.06
DTT-2A-05-FPGA	af9034105.bin	crc=ADDD0F94	version=1.06
AC_BOOT08	ab90xxx08.bin	crc=8A5792DC	version=1.08.05
AC_BOOT50	ab90xxx50.bin	crc=3B7E8961	version=1.08.05

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 EM10 system 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 EM-10, 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 EM and DP firmware images
- Extracting/verifying/flashing FPGA images to serial flash
- Configuring system memory map for all peripherals
- Storing 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 six types of access units

- 4-port Ethernet Optical (SFP),
- 4-port Ethernet Copper (RJ-45),
- T1/E1,
- CBUS,
- 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 (1.18A)

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 1.18a new feature

1. Added support for a Sync-IN unit (p/n 90081-01)

External frequency synchronization of a JunglePAX network is now supported through the Sync-IN unit that plugs into the JunglePAX Timing slot located between the redundant CORE modules. The design of this card supports

- 2x External frequency inputs – Analog or TTL (manual jumper selection), and
 - Frequency range 50kHz - 10MHz (user selections available via WebUI)
- 2x 1PPS inputs – TTL
 - High impedance or 50 Ohm
 - Frequency range 1Hz - 10MHz (user selections available via WebUI)



Left and Right CORE modules monitor for input via CLK IN #1 / 1PPS IN #1 and CLK IN #2 / 1PPS IN #2 respectively, enabling full redundancy. Secondary JPAX locations may be equipped with the Sync-IN unit to offer system-wide hardware redundancy, with fail over to internal timing supported upon complete loss of signal.



KNOWN LIMITATIONS

The following is a list of known limitations related to JPAX firmware package 1.18a.29618.

SYNC-IN		
Case	Title	Severity
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-2924	Sync-In Unit: Freq Sync Tab: PLL State reports Holdover instead of Clock Source	Normal
JXKSO-2931	Sync-In Unit: Sync-In Freq LOS and Sync Unit Missing alarms are simultaneously reported in Alarm Engine on Sync-In Unit extraction	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-2930	Sync-In Unit: Going to Sync-In Unit Missing and OK states takes a long to time to be reported	Normal
JXKSO-2935	Sync-In Unit: Sync-In Status reports 'Inactive' state	Normal



The following is a list of known limitations related to JPAX firmware package 1.18.29263, carried forward to firmware 1.18a.

- PHY Ethernet Diagnostics Tab View | Link-Status shows incorrect state
- G.703D-4A | Link Status shows OK for disabled ports
- iDS0 unit's status display stop updating if Core Card time is set backwards

DTT		
Case	Title	Severity
2740	DTT f/w upgrade via package occasionally causes AC to fail sanity check	Normal

QoS		
Case	Title	Severity
2648	QoS: ColorAware mode can't differentiate incoming yellow/green packets	Normal
2646	CIR: Traffic Monitor detects untagged frames' priority differently between Rx and Tx	Normal
2634	QoS: CIR/EIR/CBS/EBS configurations can exceed UNI speed/capabilities	Normal
2460	MP-Ethernet -> PW popup -> QoS tab (CIR)	Normal

HYBRID SDH AND OTHERS		
Case	Title	Severity
2770	Bogus iDS0 Access Card Alarms may be observed when rebooting JPAX nodes	Normal
2755	Companion sync with blank core card can prevent auth_mgr from initializing properly	Normal
2753	Mismatching Configurations by Changing TDMoP/S Port Type on the Right CC	Normal



2676	TELENIUM - JPAX sent an alarm message with a Service ID of 0	Normal
2660	Inconsistent Jitter Buffer Levels upon reboot of Core Cards	Normal
2604	Incorrect MUX protection switching for unprotected VPLS services	Normal
2538	Tunnel Object with Egress MAC 00:00:00:00:00:00 Causes BFD Down	Normal
2523	User Cannot Create Bulk T1/E1 or P2P-Nx64k Services Directly Through WebUI	Normal
2521	Channel Offset by one in E1 observed with all PRBS patterns	Normal
2785	Rebooting CC Flushes Distribution Status Information	Normal
2831	Unable to monitor one PW direction for High PLR	Normal



RESOLVED LIMITATIONS

The following is a list of limitations that have been resolved

Case	Title	Severity
2431	Restoring optical fibres can result in double hits to stitched VT/Tunnel traffic (See Notes *1, *2, *3).	Normal
1597	Fixed SFP rate Mismatch alarm for 10G WAN, which could be erroneously raised for some SFPs	Normal
2522	PHY Ethernet Diagnostics Link-Status Shows Down When Link is Up	Normal
2718	Evolution Card: VT/TU-12 AIS is displayed intermittently (See Note *4).	Normal

Note *1: The hybrid networks must load JIFShare 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 JIFShare 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 and 1.18a 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 1.18/1.18a.

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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