**NVIDIA Jetson EEPROM Layout Guide**

**Overview**

* **EEPROM Types:**
  + **Module EEPROM: Stores module-specific data (such as part number, MAC addresses).**
  + **Carrier Board EEPROM: Stores carrier board-specific data (such as serial number, Ethernet MAC).**
* **Size: Both EEPROMs are 256 bytes.**
* **Endianness: All numeric values and MAC addresses are stored in little-endian format.**

**Module EEPROM Layout**

* **Byte 0: Major version (e.g., 0x01)**
* **Byte 1: Minor version (e.g., 0x00)**
* **Bytes 2–3: Length of board ID data**
* **Bytes 4–19: Reserved (do not modify)**
* **Bytes 20–49: Product Part Number (format: 699-cnnnn-pppp-vvv r.0, e.g., 699-83448-0002-000 C.0)**
* **Bytes 50–55: Wi-Fi MAC Address (default NVIDIA MAC; set to 0x00 or 0xFF if unused)**
* **Bytes 56–61: Bluetooth MAC Address**
* **Bytes 62–67: Secondary Wi-Fi MAC Address**
* **Bytes 68–73: Gigabit Ethernet MAC Address**
* **Bytes 74–88: Asset Tracking Number (unique serial number, padded with 0x00 or 0xFF)**
* **Bytes 89–149: Reserved (for NVIDIA internal use; do not modify)**
* **Bytes 150–153: Block Signature ("NVCB")**
* **Bytes 154–155: Structure Length (28 bytes; from byte 150 to 177)**
* **Bytes 156–157: Type Signature ("M1")**
* **Bytes 158–159: Version (0x0000)**
* **Bytes 160–165: Customer Wi-Fi MAC Address (overwritable section)**
* **Bytes 166–171: Customer Bluetooth MAC Address**
* **Bytes 172–177: Customer Gigabit Ethernet MAC Address**
* **Bytes 178–254: Reserved (for future use)**
* **Byte 255: CRC-8 Checksum (computed for bytes 0–254)**

**Carrier Board EEPROM Layout**

* **Similar structure to the module EEPROM, with the following differences:**
  + **Bytes 150–153: Must contain "NVCB" to enable customer-overwritable fields.**
  + **Bytes 172–177: Gigabit Ethernet MAC address (starting address for system interfaces).**
  + **Byte 178: Number of Ethernet MAC addresses (for example, 1).**

**Key Notes**

* **MAC Address Format:**
  + **Example: MAC address 00:04:4b:01:02:03 is stored as:**
    - **Byte 50: 0x03**
    - **Byte 51: 0x02**
    - **Byte 52: 0x01**
    - **Byte 53: 0x4b**
    - **Byte 54: 0x04**
    - **Byte 55: 0x00**
* **Customer-Overwritable Section:**
  + **Modify bytes 150–177 to set custom MAC addresses.**
  + **Ensure block signature ("NVCB") and structure length (28) are correct.**
* **Reserved Sections:**
  + **Bytes 89–149 and 179–254 are reserved. Do not read or modify these.**

**Troubleshooting**

* **MAC Address Not Updating:**
  + **Verify "NVCB" signature (bytes 150–153).**
  + **Verify structure length (bytes 154–155).**
  + **Ensure CRC-8 checksum (byte 255) is valid.**
* **EEPROM Tools:**
  + **Use tegra-eeprom-tool for read/write operations.**

**References**

* **NVIDIA Jetson EEPROM Layout Documentation**
* **Jetson EEPROM Troubleshooting Forum**

**Note:  
For custom carrier boards, ensure cvb\_eeprom\_read\_size is configured correctly in device trees.**

**This document consolidates EEPROM structure, usage, and troubleshooting for NVIDIA Jetson devices.**