Devices/Embedded With GNU/Linux and/or Open Hardware

By Roy Schestowitz
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- Orange Pi 4 Metal Enclosure Launched for $10 [2]

Orange Pi 4 and Orange Pi 4B, the latter further adding a Gyrfalcon 2801S AI accelerator chip, were launched in late 2019 for as little as $50 with 4GB RAM making those some of the most affordable Rockchip RK3399 SBC's on the market.

Since then, Shenzhen Xunlong Software launched some extra accessories for the board including a PCIe expansion board with a mini PCIe socket, and a SIM card slot, and very recently a Rockchip RM310 4G LTE modem to go along. The latest addition is a metal enclosure made of aluminum alloy and suitable for either version of the board.

- Using a Pi to Synchronize Timed Events [3]

One of the Chicago stations that Salem owns has separate sites for day and night modes. One site needs to go off and the other comes on simultaneously. Both sites have older remote controls with system clocks that drift. Plus, Daylight Saving Time is hard to account for because of the limited number of events that can be programmed in the remote control.

A previous engineer had installed two of the Broadcast Tools GPS event controllers, and all was well for a number of years. Then one failed.

The symptom was erratic command execution at random times. The night facility might suddenly pop on in the middle of the day. The fault was easy to see, too. One of the segments of the LED time display, representing one bit of the CPU output, flickered erratically every once in a while.
Because the design has a single data buss running everything from display to commands on a
time-multiplexed basis, those flickers occasionally hit the contact closure drivers and strange
things happened at the site.

I thought the fix would be straightforward, since I knew which data bit was misbehaving.
Broadcast Tools cheerfully provided a schematic and I began diagnosis.

This meant lifting the IC lead associated with that data bit on every item the data buss serves,
then waiting for the misbehavior. I had to set up a relay trap to catch the behavior, since days
might pass between episodes. At some point, I abandoned the process and declared the
Broadcast Tools GPS to be a goner. So that?s where the need arose.

Broadcast Tools doesn?t make that device anymore, probably because more modern remote
controls support Network Time Protocol (NTP) and have highly accurate clocks. Not for the
first time, I was a technology orphan.

- **Quickly Embed AI Into Your Projects With Nvidia's Jetson Nano** [4]
- **zGlue Launches the Open Chiplet Initiative in Collaboration with Google and Antmicro** [5]

  We first covered zGlue?s ZiP (zGlue Integration Platform) in 2018 as the company introduced
  its multi-chip module similar to SiP (system-in-package) via a crowdfunding campaign. Just
  like SiP, the technology packages several components into a single package, but costs have
  been brought down to enable low-volume production of custom chips for a reasonable price.

  Since then the company announced new ZiP multi-chip modules such as nRF52832 based
  Omnichip and the FPGA, Arm or/and RISC-V based GEM ASIC by Antmicro. The company
  recently announced the Open Chiplet Initiative, a collection of open-source designs, tools and
  file formats, launched in collaboration with Google and Antmicro.

- **ESP32 Board Features mini PCIe & SIM Card Sockets for 4G LTE Connectivity** [6]

  LilyGO has launched yet another ESP32 WiFi & Bluetooth IoT board. As its name implies,
  TTGO-T-PCIe board includes a mini PCIe socket that coupled with a SIM card socket
  allowing users to insert a 4G LTE mPCIe card to add cellular connectivity.