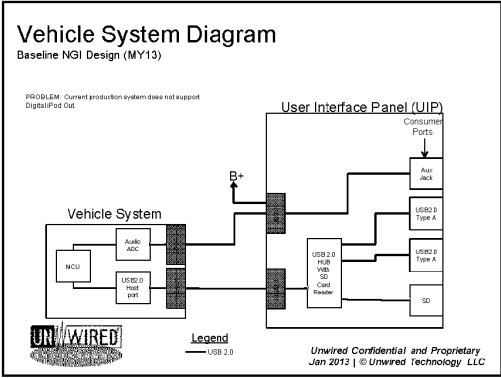
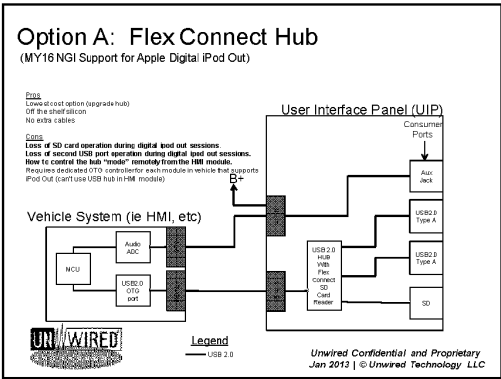
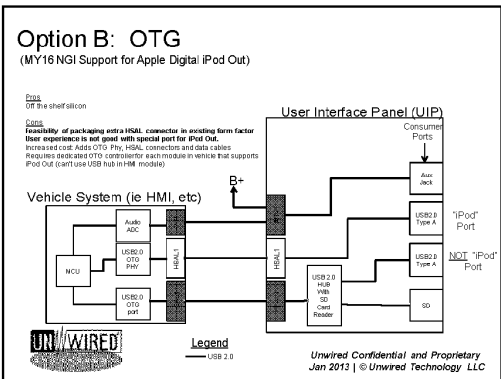








Summary

- Neither option A or B complies fully with existing functional requirements.
 - Option A does not allow access to the SD card or the second USB port if a iOS device is plugged in. Eg can't run vehicle nav app when iPhone is connected (which is likely all the time).
 - Option B forces the user to "find the right port" to make the phone work. Eg K2 vehicles have 5 ports in reach of the driver but only one will work. 80% chance to get it wrong.
- Option B may not package.
- Option B is expensive.

Conclusion: Neither option looks good. Need another option.



Unwired Confidential and Proprietary
Jan 2012 | © Unwired Technology LLC

Option C: Host 2 Host Hub

(MY16 NGI Support for Apple Digital iPod Out)

Pass

- Best User Experience: Supports Digital iPod Out on both USB connectors
- Packaging: Existing product form factor OK. No new cables to route.
- Vehicle Impact: Net reduction in vehicle wiring (weight, cost and EMC)
- Scalable: Much easier and cheaper to get iPod connection from any module in the vehicle. (eg K2x has 5 USB ports within reach of the driver serviced by two modules)
- Reuse: Add USB super speed hub functionality for MY17 without "starting over"
- Risk: Unwired is launching Host 2 Host bridge functionality with another OEM in MY15
- Cost: Same or lower high volume system cost as Option B OTO

Costs

- Custom ASIC: cost (exists currently in FPGA form, active development)
- Custom Linux USB drivers in HMI module (supported by Unwired)

Vehicle System (ie HMI, etc)

User Interface Panel (UIP)

Legend

- USB 2.0

Unwired Confidential and Proprietary
Jan 2012 | © Unwired Technology LLC

USB Host to Host Bridge

Purpose

Provide a gateway for two USB 2.0 hosts to communicate with each other over standard USB protocol for purposes of control sessions, file transfers and streaming content. Specifically, one host is meant to be the car radio head unit and the other is a personal mobile device such as phone or tablet.

General Assumptions and Requirements

- Compliance to USB Device standards (where possible)
- Compliance to Mobile Device Manufacturer's proprietary messaging protocols, endpoint, thru put, latency and requirements. Such requirements may not all be known in prior and may change over time.
- Custom USB driver in the headunit.
- Automotive Grade components
- Package size, cost, and board space minimized
- Adaptable to changing requirements from mobile device manufacturers
- Field Firmware Upgradable



Unwired Confidential and Proprietary
Jan 2012 | © Unwired Technology LLC

