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The choice of GPS receiver solutions in different applications

The same as other RF devices like WiFi, WiMAX and Bluetooth, the GPS receiver also needs antenna to receive the satellites signal well. So, the first consideration to choose the GPS receiver is to decide where to put the GPS antenna. The antenna could be put together onto the GPS receiver as an all-in-one GPS module (GPS smart antenna), or separately and connected to GPS receiver by RF wire/cable. The most important thing is to put the antenna visible to the satellites on the sky, and not to be blocked by obstructed environment or metal material.

The simplest application of GPS receiver is to treat it is as a peripheral and companion device to the host applications. For examples, the GPS USB dongle receiver to the portable tablet PC device, and the cable (mouse) receiver to the vehicle based tracker device or mobile DVR system. Navisys supports the customization of GPS mouse receiver with different I/O interfaces, I/O connectors and cable length, as introduced in the article "[Customized GPS cable receivers for varieties of applications.](#)"

On the contrary, most applications embed the GPS receiver inside target platform. It's feasible to adopt external GPS antenna if the GPS receiver is put under obstructed environment, like tracker device with metal housing. An alternative is to put the all-in-one GPS module inside the target platform. In addition to the introduction in the article "[Tips to design in GPS modules inside target platform](#)", there are some criteria below to choose the appropriate GPS modules:

- ✓ **The built-in GPS chipset.** u-blox, SiRF (now Qualcomm) and MTK (Airoha) are top three leading chipset makers in GPS field by their product quality and performance. With the integrated flash memory, Navisys also supports customized firmware for SiRF and MTK solution.
- ✓ **The form factor of the GPS module.** If there is enough space inside the target platform to put GPS module, the bigger the on-module patch antenna, the better the GPS reception performance. Navisys also supports different kinds of GPS modules with built-in different sized patch antenna, even with slim patch antenna and thinnest chip antenna to meet specific space requirement of target system applications.



- ✓ **The required I/O interface.** TTL and USB are two most popular interfaces. The baud rate needs to be confirmed for TTL interface, while driver support in target operating system is very important to convert USB interface to serial UART interface. Besides, 1PPS pulse will be required for special timing application, and power control function is useful in power saving for portable devices.