

Interface data structures

Cartography display module

This module has a queue (GPSdispQ) for input commands.

Received messages

Only MSG_CONTROL messages (value = 1) can be received in this queue, message structure is:

```
// Control struct (can be Area, Center or Dest)
typedef struct DGPSctlMsg
{
    long mtype; /* mtype is 1 for control messages */
    int iDGPSid; /* values, GPSDISP_AREA, GPSDISP_CENTER or GPSDISP_DEST */
    union DGPSctl
    {
        DGPS_area stcDGPS_area;
        DGPS_center stcDGPS_center;
    }
} DGPSctlMsg;
```

Where:

- mtype:** message type. This is a mandatory variable as first element in msgbuf structure, indicating message type. For control messages *mtype* = 1, for data messages *mtype* = 2. This module receives only control message, *mtype* = MSG_CONTROL (1)
- iDGPSid:** GPS Display message ID. Indicates which control message it is. Value
- GPSDISP_AREA (101) indicates display an area defined by North, South, East and west limits
 - GPSDISP_CENTER (102) indicates display an area defined by center and map scale.
 - GPSDISP_DSPDATA (103), means display destination data (time to destination, dist to destination ...) data. Data is read from Destination shared memory area.
 - GPSDISP_STNXTWP (104), Set next waypoint/destination in route.
- DGPSctl:** GPS display message control union. Is a union of two possible sub-structures: *stcDGPS_area* for area display messages and *stcDGPS_center* for center & scale display messages.

DGPS_area structure

Contains display limits when iDGPSid = GSPDISP_AREA. All data is in format hddd.dddd° WGS84 datum.

```
//area displayed
typedef struct DGPS_area
{
    double dNorth; /* hddd.dddd° North limit WGS84 */
    double dWest; /* hddd.dddd° West limit WGS84 */
    double dSouth; /* hddd.dddd° South limit WGS84 */
    double dEast; /* hddd.dddd° East limit WGS84 */
}DGPS_area;
```

where:

dNorth	Minimum North limit of area to be displayed
dWest	Minimum West limit of area to be displayed
dSouth	Minimum South limit of area to be displayed
dEast	Minimum Eastlimit of area to be displayed

DGPS_center structure

Contains data for center and scale map display.

```
//Center and scale display
typedef struct DGPS_center
{
    double dLat; /* hddd.dddd° North latitude WGS84 */
    double dLong; /* hddd.dddd° East longitude WGS84 */
    float fScale; /* Scale */
} DGPS_center;
```

where:

dLat	North latitude in hddd.dddd° (WGS84) of display center point.
dLong	East longitude in hddd.dddd° (WGS84) of display center point.
fScale	Scale in meters/pixel of map.

DGPS_SetNextWp structure

Sets next waypoint/destination in route.

```
//Set next waypoint in route
typedef struct DGPS_SetNextWp
{
    char stWpName[MAXWPNAME]; /*Name of Waypoint */
    double dLat; /* hddd.dddd° North latitude WGS84 */
    double dLong; /* hddd.dddd° East longitude WGS84 */
} DGPS_SetNextWp;
```

where:

stWpName	Waypoint name.
dLat	North latitude in hddd.dddd° (WGS84) of next waypoint/destination point.
dLong	East longitude in hddd.dddd° (WGS84) of next waypoint/destination point.