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1:  /*
2:      libxbee - a C library to aid the use of Digi's Series 1 XBee modules
3:      running in API mode (AP=2).
4:
5:      Copyright (C) 2009 Attie Grande (attie@attie.co.uk)
6:
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11:
12:     This program is distributed in the hope that it will be useful,
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15:     GNU General Public License for more details.
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17:     You should have received a copy of the GNU General Public License
18:     along with this program. If not, see <http://www.gnu.org/licenses/>.
19: */
20:
21: #ifndef XBEE_H
22: #define XBEE_H
23:
24: #include <stdarg.h>
25:
26: enum xbee_types {
27:     xbee_unknown,
28:
29:     xbee_localAT, /* frame ID */
30:
31:     xbee_remoteAT,
32:     xbee_16bitRemoteAT, /* frame ID */
33:     xbee_64bitRemoteAT, /* frame ID */
34:
35:     xbee_16bitData, /* frame ID for ACKs */
36:     xbee_64bitData, /* frame ID for ACKs */
37:
38:     xbee_16bitIO,
39:     xbee_64bitIO,
40:
41:     xbee_txStatus,
42:     xbee_modemStatus
43: };
44: typedef enum xbee_types xbee_types;
45:
46: struct xbee_con {
47:     unsigned int tAddr64 : 1;
48:     unsigned int atQueue : 1; /* queues AT commands until AC is sent */
49:     unsigned int txDisableACK : 1;
50:     unsigned int txBroadcast : 1; /* broadcasts to PAN */
51:     unsigned int __spare__ : 4;
52:     xbee_types type;
53:     unsigned char frameID;
54:     unsigned char tAddr[8]; /* 64-bit 0-7 16-bit 0-1 */
55:     struct xbee_con *next;
56: };
57: typedef struct xbee_con xbee_con;
58:
59: struct xbee_pkt {
60:     unsigned int sAddr64 : 1; /* yes / no */
61:     unsigned int dataPkt : 1; /* if no - AT packet */
62:     unsigned int txStatusPkt : 1;
63:     unsigned int modemStatusPkt : 1;
64:     unsigned int remoteATPkt : 1;
65:     unsigned int IOPkt : 1;
66:     unsigned int __spare__ : 2;
67:     xbee_types type;
68:     unsigned char frameID; /* AT Status */
69:     unsigned char atCmd[2]; /* AT */
70:     unsigned char status; /* AT Data Status */ /* status / options */
71:     unsigned char Addr64[8]; /* AT Data */
72:     unsigned char Addr16[2]; /* AT Data */
73:     unsigned char data[128]; /* AT Data */
74:     unsigned char RSSI; /* Data */
75:     unsigned int datalen;
76:
77:     /* X A5 A4 A3 A2 A1 A0 D8 D7 D6 D5 D4 D3 D2 D1 D0 */
78:     unsigned short IOMask; /* IO */
79:
80:     /* X X X X X X X D8 D7 D6 D5 D4 D3 D2 D1 D0 */
81:     unsigned short IOdata; /* IO */
82:
83:     /* X X X X X D D D D D D D D D */
84:     unsigned short IOanalog[6]; /* IO */
85:

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86:     struct xbee_pkt *next;
87: };
88: typedef struct xbee_pkt xbee_pkt;
89:
90: int xbee_setup(char *path, int baudrate);
91: xbee_con *xbee_newcon(unsigned char frameID, xbee_types type, ...);
92: #define xbee_endcon(x) xbee_endcon2((void **)&x)
93: void xbee_endcon2(xbee_con **con);
94: xbee_pkt *xbee_senddata(xbee_con *con, char *format, ...);
95: xbee_pkt *xbee_vsnddata(xbee_con *con, char *format, va_list ap);
96: xbee_pkt *xbee_getpacket(xbee_con *con);
97:
98: int xbee_hasdigital(xbee_pkt *pkt, int input);
99: int xbee_getdigital(xbee_pkt *pkt, int input);
100:
101: int xbee_hasanalog(xbee_pkt *pkt, int input);
102: double xbee_getanalog(xbee_pkt *pkt, int input, double Vref);
103:
104: #endif
```