typedef struct {

VAR CURRENT;

VAR CURRENT\_PERCENT\_OF\_RANGE;

VAR LRV;

VAR URV;

VAR TRIM\_MIN;

VAR TRIM\_MAX;

VAR VALUE;

float TRIM\_MIN\_C;

float TRIM\_MAX\_C;

REGVECT v;

REGVECT class;

REGVECT unit;

BOOL present;

float val;

} **LOOPDATA\_I;**

typedef struct {

int head;

int tail;

int n;

unsigned int GSEED;

unsigned int CRC16;

unsigned int buff[MAXBUFF];

int sum;

BOOL locked;

} **BFR;**

typedef struct {

VAR CURRENT;

VAR CURRENT\_PERCENT\_OF\_RANGE;

VAR LRV;

VAR URV;

VAR TRIM\_MIN;

VAR TRIM\_MAX;

float TRIM\_MIN\_C;

float TRIM\_MAX\_C;

int ALARM\_SELECT;

float MINSPAN;

REGVECT v;

REGVECT class;

REGVECT unit;

int MANUAL;

float MANUAL\_PERCENT;

/\* PID section, if v==-2 \*/

int REVERSE;

float PID\_input;

float PID\_setpoint;

VAR P; /\*Add PID to stream table RS\*/

VAR I; /\*Add PID to stream table RS\*/

VAR D; /\*Add PID to stream table RS\*/

int pid\_lastcycle;

float pid\_output;

float pid\_propband;

float pid\_error;

float pid\_bias;

BOOL present;

BOOL PID\_fail;

BOOL PID\_enable\_failsafe;

} **LOOPDATA\_O;**

typedef struct {

int\* prev;

int\* next;

int\* vect;

int priority;

} **EPKT;**

typedef struct {

int i;

float Watercut;

float Temperature;

float Salinity;

float Frequency\_Oil;

float Frequency\_Water;

float RefPower\_Oil;

float RefPower\_Water;

float Dadj;

int Time\_HH;

int Time\_MM;

int Time\_MONTH;

int Time\_DAY;

int Time\_DAY\_OF\_WEEK;

int Time\_YEAR;

} **CAPDATA;**

typedef struct {

float Watercut[2];

float Temperature[2];

float Salinity[2];

float Frequency\_Oil[2];

float Frequency\_Water[2];

float RefPower\_Oil[2];

float RefPower\_Water[2];

float Dadj[2];

int Time\_MONTH\_DAY\_HH\_MM[2];

int CLRSTAT\_Time\_YEAR[2];

} **CAPRECORD;**

typedef struct {

int Start\_HH;

int Start\_MM;

int Start\_SS;

int Start\_MONTH;

int Start\_DAY;

int Start\_YEAR;

int Stop\_HH;

int Stop\_MM;

int Stop\_SS;

int Stop\_MONTH;

int Stop\_DAY;

int Stop\_YEAR;

float stream;

float elapsed\_s;

float duration;

float purge;

float gross\_gas;

float gross\_oil;

float gross\_water;

float gross\_total;

float gas24;

float oil24;

float water24;

float total24;

float watercut;

} **CCMRECORD;**

typedef struct {

int SNUM;

int ADDR;

int BNUM;

int REV;

int MONTH;

int DAY;

int YEAR;

} **BOARD;**

typedef struct {

int MODE;

int STATUS\_MASK;

REGVECT v;

float setpoint;

COIL ON;

int class;

int unit;

} **RELAYDATA;**

typedef struct {

float diag;

float mfr;

int u\_mfr;

float density;

int u\_density;

float density\_PDI\_corrected;

float density\_corrected;

int u\_density\_corrected;

float T;

int u\_T;

float vfr;

int u\_vfr;

float visc;

int u\_visc;

float press;

float mass\_total;

int u\_m;

float volume\_total;

int u\_v;

int u\_P;

float P;

float mass\_inv;

float volume\_inv;

float raw\_tube\_freq;

float left\_pickup\_value;

float right\_pickup\_value;

float drive\_gain;

VAR damp\_flow\_rate;

VAR damp\_density;

VAR mfr\_cutoff;

VAR vfr\_cutoff;

VAR mcf;

VAR address; /\*MM initial Slave address config RS\*/

VAR mass\_unit; /\*Config mass flow unit RS\*/

VAR density\_cutoff; /\*Config density cutoff RS\*/

COIL Z;

} **CORIOLIS;**

typedef struct {

float p\_delta;

float p\_static;

float T;

float diag0;

float diag1;

float diag2;

int u\_DP;

int u\_SP;

int u\_PT;

} **PRESSURE;**

typedef struct {

float T;

float etc0;

float etc1;

float etc2;

float etc3;

float etc4;

} **TMPT;**

typedef struct {

VAR watercut;

VAR T;

VAR pressure;

VAR density;

float density\_PDI\_corrected;

float density\_adj;

VAR density\_oilST;

VAR density\_oil;

VAR density\_waterST;

VAR density\_water;

VAR salinity;

int API\_TABLE;

float a;

VAR Meter\_Factor;

VAR Shrinkage;

float VCFo;

float VCFw;

float net\_watercut;

float net\_watercut\_mass;

float Dadj;

VAR NET\_FLOW\_OIL;

VAR NET\_FLOW\_WATER;

VAR NET\_FLOW\_TOTAL;

VAR NET\_OIL;

VAR NET\_WATER;

VAR NET\_TOTAL;

VAR GROSS\_OIL;

VAR GROSS\_WATER;

VAR GROSS\_TOTAL;

VAR FLOW\_OIL;

VAR FLOW\_WATER;

VAR FLOW\_TOTAL;

unsigned int PULSES\_PER\_ACCUM\_UNIT;

VAR PULSE\_TOTAL;

VAR PULSE\_FLOW;

VAR PULSE\_FREQ;

unsigned int PULSE\_COUNTER;

int PULSE;

int CNT;

int PULSE\_DELTA;

float PULSE\_FACTOR;

int PULSE\_STAT;

BOOL enable\_NET;

BOOL enable\_GROSS;

BOOL enable\_FLOW;

BOOL enable\_DENSITY;

BOOL enable\_PULSE;

REGVECT flow\_class;

REGVECT flow\_unit;

REGVECT accum\_unit;

COIL Z;

BOOL USE\_PDI\_TEMP;

BOOL USE\_PDI\_SALINITY;

BOOL USE\_PDI\_WATERCUT;

BOOL CALC\_WC\_DENSITY;

BOOL MAN\_TEMP;

BOOL MAN\_SALINITY;

BOOL MAN\_WATERCUT;

BOOL MAN\_DENSITY;

BOOL MAN\_PRESSURE;

BOOL MAN\_FLOW;

unsigned int AUTHORIZATION\_CODE1;

unsigned int AUTHORIZATION\_CODE2;

unsigned int AUTHORIZATION\_CODE3;

unsigned int AUTHORIZATION\_CODE4;

} **FLOW\_COMP;**

typedef struct {

float WATERCUT;

float FLOW\_RATE;

float TEMPERATURE;

float DENSITY;

float VISCOSITY;

int iWATERCUTz;

int iWATERCUT;

int iFLOW\_RATE;

int iTEMPERATURE;

int iDENSITY;

int iVISCOSITY;

float maxWATERCUTz;

float maxWATERCUT;

float maxFLOW\_RATE;

float maxTEMPERATURE;

float maxDENSITY;

float maxVISCOSITY;

float minWATERCUTz;

float minWATERCUT;

float minFLOW\_RATE;

float minTEMPERATURE;

float minDENSITY;

float minVISCOSITY;

BOOL ENABLED;

VAR DESTINATION\_ADDRESS;

} **ALYESKA\_STRUCT;**

typedef struct {

COIL ENABLED;

/\*float flow\_threshold;\*/

VAR flow\_threshold;/\*Add stream select for Hsalt and Gas routine RS\*/

/\*float span; \*/

VAR span;/\*Add stream select for Hsalt and Gas routine RS\*/

float S3;

float S2;

float S1;

float S0;

float Fmin;

float Fmax;

float Dmin;

float Dmax;

BOOL new;

BOOL CHANGED;

BOOL PURGING;

BOOL TEST\_IN\_PROGRESS;

float SP3A;

float SP2A;

float SP1A;

float SP0A;

float SPLOA;

float SPHIA;

float SP3B;

float SP2B;

float SP1B;

float SP0B;

float SPLOB;

float SPHIB;

float FBHI3;

float FBHI2;

float FBHI1;

float FBHI0;

float FBLO3;

float FBLO2;

float FBLO1;

float FBLO0;

} **HS\_STRUCT;**

typedef struct {

unsigned int log\_len;

unsigned int log\_n\_sectors;

unsigned int log\_n\_max\_per\_sector;

unsigned int log\_n;

unsigned int log\_current\_sector;

unsigned int log\_absolute\_index;

unsigned int\* log\_start;

unsigned int log\_sector\_size;

unsigned int log\_record\_size;

unsigned int log\_end;

unsigned int LOG\_ERASE;

BOOL erased\_sector;

} **LOG;**

typedef struct {

BOOL INIT;

BOOL FRESH;

BOOL MENU;

BOOL SELECT;

BOOL VALUE;

BOOL ENTER;

int DIR;

BOOL DIR\_CHANGE;

BOOL M;

BOOL S;

BOOL V;

BOOL E;

BOOL CURSOR\_ENABLED;

int CURSOR\_ROW;

int CURSOR\_COL;

unsigned int CNT;

unsigned int MENU\_CNT;

unsigned int SELECT\_CNT;

unsigned int VALUE\_CNT;

unsigned int k;

BOOL MODE\_LOCKDOWN;

BOOL MODE\_WPROT;

BOOL MODE\_DEFINE;

BOOL MODE\_USER;

BOOL MODE\_TECH;

BOOL MODE\_NORMAL;

unsigned int PAGE;

unsigned int SUBPAGE;

BOOL MENU\_TRAP;

BOOL DIP[4];

float tmpf[10];

int tmpi[10];

char str[4][101];

VAR tmpv;

VAR\* ptmpv;

int\* tbl;

} **MENU\_STRUCT;**

typedef struct {

int Slave;

int SNUM;

BOOL PRESENT;

BOOL TX\_complete;

BOOL RX\_pending;

BOOL BUSY;

BOOL IGNORE\_RX;

unsigned char STAT;

unsigned char DAT;

BOOL broadcast;

int TMR\_Network\_WDOG;

int TMR\_EOT\_Delay;

int TMR\_Prefix\_Delay;

int TMR\_Suffix\_Delay;

int TMR\_Char;

TPKT TMR\_Poll;

TPKT TMR\_Retry;

int nr;

BOOL Received\_PKT;

BOOL TMR\_enabled;

int\* tvector; /\* port timer vector \*/

int\* pvector; /\* port vector current \*/

int\* pvector\_main; /\* port vector start \*/

int\* tvector\_main; /\* port timer vector start \*/

int\* fvector;

/\* final vector - this vector executes (GIE) after the suffix, and before releasing the port \*/

float actual\_baud\_rate;

BOOL c;

BOOL r;

int n;

int n\_exp;

int ai;

int start;

int i;

int i\_main;

unsigned int func;

unsigned int ERROR\_COUNT;

unsigned int WDOG\_COUNT;

unsigned int INV\_CMD\_COUNT;

unsigned int INV\_PKT\_COUNT;

unsigned int SUCCESS;

unsigned int NUM\_RETRIES;

BOOL FLAG1;

BOOL FLAG2;

BOOL FLAG3;

BOOL LONG\_ADDRESS;

LIST MASTER;

int\* p;

unsigned int data;

float\* f;

unsigned int\* l;

BOOL failed;

} **PORTV;**

typedef struct {

VAR PREFIX;

VAR SUFFIX;

VAR NETWDOG;

VAR Slave\_ID;

VAR Baud\_Rate;

int Parity;

int n\_bits;

int STP;

int N;

int N\_retry;

VAR EOT\_Delay;

VAR Retry\_Time;

VAR Num\_Retry;

int poll\_time;

int timeout;

} **PORTC;**

typedef struct {

int\* prev;

int\* next;

int\* rxvect;

int\* txvect;

int n;

int slave;

int func;

int addr;

int num;

float v[nmax];

float\* flt\_ptr;

int\* int\_ptr;

} **MPKT;**

typedef struct {

int\* prev;

int\* next;

int\* vect;

int priority;

int\* parent;

int n; /\* Number of times to repeat (if (n==-1) repeat forever) \*/

int prev\_n;

int countdown;

int preset\_time;

float t;

} **TPKT;**

typedef struct {

float val; /\* value that is read by user & clipped \*/

int\* vect1;

int\* vect2;

int STAT;

float dampening;

int damp\_count;

int aux;

float val1; /\* value that is intermediate for dampening \*/

float val2; /\* value that is dampened \*/

long double calc\_val; /\* value used in calculations \*/

long double base\_val; /\* original value prior to calculations \*/

int unit; /\* unit that is read by user \*/

int calc\_unit; /\* unit that is used in calculations \*/

int class; /\* variable classification \*/

float scale; /\* amount to scale the integer values \*/

float scale\_long; /\* amount to scale the integer values \*/

/\* based off of calc\_val \*/

float bound\_hi\_set;

float bound\_lo\_set;

float alarm\_hi\_set;

float alarm\_lo\_set;

char name[21];

} **VAR;**

typedef struct {

BOOL val;

int\* vect;

int\* vect2;/\*Add stream select for Hsalt and Gas routine RS\*/

} **COIL;**

typedef struct {

int val;

int\* vect;

} **REGVECT;**

typedef struct {

int\* head;

int\* tail;

int n;

} **LIST;**

typedef struct {

int\* prev;

int\* next;

} **GENERIC;**