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gisr2:    NOP                                LACC    rpmn;                                SUB    templ,16;
          MAR    *,AR0;                      ADD    #1;                                SACH    adca
          SST    #0,*-;ST0 to 7Eh            SACL    rpmn;                                LDP
          SACH    *-*; store HIGH ACC        B    STWRE;                                #DP_PF1;
          SACL    *-*; store LOW ACC        YESEQ8: LACC    rpmtoth,16;                LACC    ADCFIFO2,15;
          qq2:    LDP                        ADDS    rpmtotl;                LDP
#DP_VAR;  SFR;/2                            #DP_VAR;
          LACL    tln;                      SFR;/4                                SUB    templ,16;
          SUB    #0; tln==0?                SFR;/8                                SACH    adcb
          BCND                                         SETC    SXM;
NEXTN10,NEQ;                                rpm;                                ;LACC    adca,15;
NEXTTOTH: LACL    tln;                      SPLK    #0,rpmn;                ADD    adca,16;
N=N+1    SPLK    #0,rpmtoth;                NEG;
          ADD    #1;                      SPLK    #0,rpmtotl;            SACH    adcc;i
N=N+1    STWRE:                                ;**** end of ADC input
          SACL    tln;                      LACC                                ;--- start calculate ids-----
N=N+1    rpmnow;                                -
          SPLK                                SACL    rpm;                SPM    0;D
#1,spindex;                                SPM    0;                LACL    adca; 1
          B    PREILOOP                    SETC    SXM;                SACL    ids;i
NEXTN10: LACL    tln;                                LT    rpm;                ;----end of calculate ids
          SUB                                MPY    wreconst;            ;--start iqs-----
#10;tln==10?                                PAC;                LT    iqsk;
          BCND                                SFL;                MPY    adcb;
NEXTTOTH,NEQ;                                SACH                                PAC;
          SPLK    #1,tln;                wreint; i                SACH    temp,1;
          LDP    #DP_VAR;                SACL                                MPY    adcc;
          IN                                wrefrac;                PAC;
rpmnow,0E000h;                                CLRC    SXM;                SACH    tempfrac,1;
          NOP;                                LACC                                LACC    temp,15;
          NOP;                                wrefrac,15;                SUB    tempfrac,15;
          NOP;                                SACH                                SACH    iqs,1;
          NOP;                                wrefrac;                LDP    #DP_EV;
          LACC    rpmn;                                ;SETC                LACL    T2CNT;
          SUB    SXM;                PREILOOP: CLRC    SXM;                LDP    #DP_VAR;
#rpmavgcnt;                                SPLK                                SACL    t2count;
          BCND    YESEQ8,EQ;                #offsetd,templ                ADD    stableaddr;
          LACC                                LDP                                TBLR    sinthre;
rpmtoth,16;                                #DP_PF1;                ADD    cosoff;
          ADDS    rpmtotl;                LACC    ADCFIFO1,15;            TBLR    costhre;
          ADDS    rpmnow;                LDP                                LACL    #0;reset
          SACH    rpmtoth;                ACC;
          SACL    rpmtotl;                #DP_VAR;                LT    ids;

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MPY	costhre;	B	STA1LQACT;	LACC	tempfrac,15;
LTA	iqs;	A1IQGE0:	LACC iqint;	SACH	tempfrac;
MPY	sinthre;		SACL kk3int;	SETC	SXM;
APAC;			LACC iqfrac;	LACC	tempint;
SACH	idsr,1;		SACL kk3frac;	ADD	tttint;
;-----start iqsr---		STA1LQACT:	LACC kk3int;	ADD	kk1int;
LACL	#0;reset ACC;	SUB	#3;3;	SACL	tempint;
LT	iqs;	BCND	A1IQGT3,GT;	LT	kk3int;
MPY	costhre;	SPLK	#43,lqact;	MPY	tempint;
LTA	ids;	B	STVDQ0;	PAC;	
MPY	sinthre;	SPLK	#0,temp1;	SACL	ttempint;
SPAC;		SPLK	#-12,kk1int;	MPY	tempfrac;
SACH	iqsr,1;.	SPLK	#0,kk1frac;	PAC;	
;--end idsr and iqsr--		SPLK	#81,kk2int;	SFL;	
LT	idsr;	SPLK	#0,kk2frac;	SACH	tttint;
MPY	igain;	B	STA1CAL;	SACL	tttfrac;
PAC;		A1IQGT3:		CLRC	SXM;
SFL;		SPLK	#1790,temp1;	LACC	tttfrac,15;
SACH	idint;	SPLK	#-2,kk1int;	SACH	tttfrac;
SACL	idfrac;	SPLK	#-17944,kk1frac;	SETC	SXM;
CLRC	SXM;	SPLK	#52,kk2int;	LT	kk3frac;
LACC	idfrac,15;	SPLK	#18675,kk2frac;	MPY	tempint;
SACH	idfrac;	STA1CAL:		PAC;	
SETC	SXM;	LT	temp1;	SFL;	
LT	iqsr;	MPY	kk3int;	SACH	kk1int;
MPY	igain;	PAC;		SACL	kk1frac;
PAC;		SFL;		CLRC	SXM;
SFL;		SACH	tempint;	LACC	kk1frac,15;
SACH	iqint;	SACL	tempfrac;	SACH	kk1frac;
SACL	iqfrac;	CLRC	SXM;	SETC	SXM;
CLRC	SXM;	LACC	tempfrac,15;	MPY	tempfrac;
LACC	iqfrac,15;	SACH	tempfrac;	PAC;	
SACH	iqfrac;	SETC	SXM;	SACH	ttempfrac,1;
SETC	SXM;	MPY	kk3frac;	LACC	tttfrac;
STIQABS:	BIT	PAC;		ADD	ttempfrac;
iqint,0;		SACH	ttempfrac,1;	ADD	kk1frac;
BCND	A1IQGE0,NTC;	LACC	tempfrac;	ADD	kk2frac;
LACC	iqint;	ADD	ttempfrac;	SFL;	
NEG;		ADD	kk1frac;	SACH	temp;t
SACL	kk3int;=-iqint	SFL;		LACC	ttempint;
LACC	iqfrac,15;	SACH	tttint;	ADD	tttint;
NEG;		SACL	tempfrac;	ADD	kk1int;
SACH	kk3frac,1;	CLRC	SXM;	ADD	temp;

ADD	kk2int;	SACH	ttempfrac;	SUB	kk1frac,15;
SACL	lqact;*	SETC	SXM;	SACH	tempfrac,1;
		LT	tempfrac;	MODERR: MPY	idfrac;
STVDQ0:		MPY	iqint;	PAC	
LACC	lqact,15;	PAC;		SACH	
NEG;		SFL;		ttempfrac,1;	
SACH	temp,1	SACH	tttint;	LACC	mf,15;
LT	temp;	SACL	tttfrac;	ADD	tempfrac,15;
MPY	wreint;	CLRC	SXM;	ADD	
PAC;		LACC	tttfrac,15;	ttempfrac,15;	
SFL;		SACH	tttfrac;	SACH	temp,1;
SACH	tempint;	SETC	SXM;	LT	temp;
SACL	tempfrac;	MPY	iqfrac;	MPY	wreint;
CLRC	SXM;	PAC;		PAC;	
LACC	tempfrac,15;	SACH	temp,1;	SFL;	
SACH	tempfrac;	LACC	ttempfrac;	SACH	tempint;
SETC	SXM;	ADD	tttfrac;	SACL	tempfrac;
MPY	wrefrac;	ADD	temp;	CLRC	SXM;
PAC		SFL;		LACC	tempfrac,15;
SACH	kk1frac,1;	SACH	tempint;	SACH	tempfrac;
LACC	tempfrac;	SACL	tempfrac;	SETC	SXM;
ADD	kk1frac;	CLRC	SXM;	MPY	wrefrac;
SFL;		LACC	tempfrac,15;	PAC;	
SACH	kk1int;	SACH	vd0frac;	SACH	ttempfrac,1;
SACL	tempfrac;	SETC	SXM;	LACC	tempfrac;
CLRC	SXM;	LACC	vd0int;	ADD	ttempfrac;
LACC	tempfrac,15;	ADD	ttempint;	SFL;	
SACH	tempfrac;	ADD	tttint;	SACH	tttint;
SETC	SXM;	ADD	tempint;	SACL	tttfrac;
LACC	tempint;	SACL	vd0int;	CLRC	SXM;
ADD	kk1int;	LT	ldact	LACC	tttfrac,15;
SACL	tempint;	MPY	idint;	SACH	vq0frac;
LT	tempint;	PAC;		SETC	SXM;
MPY	iqint;	SFL;		LACC	tempint;
PAC		SACL	tempfrac;	ADD	tttint;
SACL	vd0int;	CLRC	SXM;	SACL	vq0int;
MPY	iqfrac;	LACC	tempfrac,15;	LACC	rpm;
PAC;		SACH	tempfrac;	SUB	#baserpm;
SFL;		SETC	SXM;	BCND	ISSAT_SEC0,LEQ;
SACH	ttempint;	BIT	idint,0;	SUB	#166;
SACL	ttempfrac;	BCND	MODERR,NTC;	BCND	ISSAT_SEC1,LEQ;
CLRC	SXM;	SPLK	#oned,kk1frac;	SUB	#339;=rpm-3740
LACC	ttempfrac,15;	LACC	tempfrac,15;	BCND	ISSAT_SEC2,LEQ;

B	ISSAT_SEC3;	SACH	ttempint;	PAC;
rpm>3740		SACL		SFL;
ISSAT_SEC0:		issatfrac;		SACH ttempint;
SPLK		CLRC	SXM;	SACL ttempfrac;
#25,issatint;		LACC		CLRC SXM;
SPLK		issatfrac,15;		LACC ttempfrac,15;
#0,issatfrac;		SACH		SACH ttempfrac;
B	CHKSPDLOOP	issatfrac;		SETC SXM;
ISSAT_SEC1:		SETC	SXM;	MPY tempfrac;
SPLK	#-	LACC	tempint;	PAC;
84,kk1frac;		ADD	ttempint;	SACH tttfrac,1;
SPLK	#33,kk2int;	ADD	kk2int;	LACC spdkifrac;
SPLK		SACL	issatint;	ADD ttempfrac;
#9584,kk2frac;		CHKSPDLOOP: LACC		ADD tttfrac;
B	CAL_ISSAT;	spdindex;		SFL;
ISSAT_SEC2:		BCND AILLOOP,NEQ;		SACH tttint;
SPLK	#-	ASPDLOOP:		SACL spdkifrac;
230,kk1frac;				CLRC SXM;
SPLK	#48,kk2int;	LACC rpmcom;		LACC spdkifrac,15;
SPLK		SUB rpm;		SACH spdkifrac;
#16474,kk2frac;		SACL drpm;		SETC SXM;
B	CAL_ISSAT;	STSPD:		LACC spdkiint;
ISSAT_SEC3:		LT drpm;		ADD ttempint;
SPLK	#-	MPY spdki;		ADD tttint;
332,kk1frac;		PAC;		SACL spdkiint;
SPLK	#60,kk2int;	SFL;		;-----end of integration-
SPLK		SACH spdkiint;		LACC spdkiint;
#6427,kk2frac;		SACL spdkifrac;		ABS;
CAL_ISSAT:		CLRC SXM;		SUB #1;
LT	kk1frac;	LACC spdkifrac,15;		SUB issatint;
MPY	rpm;	SACH spdkifrac;		BCND YESKISAT,GEQ;
PAC;		SETC SXM;		B STPICOM;
SFL;		MPY spdki;		YESKISAT: BIT spdkiint,0;
SACH	tempint;	PAC;		BCND POSKI,NTC;
SACL	tempfrac;	SFL;		LACC issatint;
CLRC	SXM;	SACH tempint;		NEG;
LACC		SACL tempfrac;		SACL spdkiint;
tempfrac,15;		CLRC SXM;		LACC
SACH	tempfrac;	LACC tempfrac,15;		issatfrac,15;
SETC	SXM;	SACH tempfrac;		NEG;
LACC	tempfrac;	SETC SXM;		SACH spdkifrac,1;
ADD	kk2frac;	LT spdki;		B STPICOM;
SFL;		MPY tempint;		POSKI:

LACC issatint;	LACC iscomint;	FWVDQOGEQ,LEQ;
SACL spdkiint;	NEG;	;----start nonsat MTPA-----
LACC issatfrac;	SACL diqint;	STMTPA:
SACL spdkifrac;	LACC iscomfrac,15;	
STPICOM: LACC spdkpfrac;	NEG;	SPLK #0,t2new;
ADD spdkifrac;	SACH diqfrac,1;	OUT t2new,DAC2;
SFL;	B ABSNEXT;	OUT t2new,DAC_UPDATE;
SACH tempint;	GEQIS: LACC iscomint;	SPLK #-141,kk1frac=
SACL iscomfrac;	SACL diqint;	SPLK #1,kk2int;=1
CLRC SXM;	LACC iscomfrac;	SPLK #2501,kk2frac;
LACC iscomfrac,15;	SACL diqfrac;	SPLK #-1998,kk3frac;-
SACH iscomfrac;		LT kk1frac;
SETC SXM;	ABSNEXT: LACC rpm;	MPY diqint;
LACC spdkpint;	SUB #wcrpm;	PAC;
ADD spdkiint;	BCND FWVDQOGEQ,GEQ;	SFL;
ADD tempint;	ADD #555;	SACH tempint;
SACL iscomint;	BCND STMTPA,LEQ;	SACL tempfrac;
LACC iscomint;	SPLK #-	CLRC SXM;
ABS;	1291,kk1frac;	LACC
SUB #1;	SPLK #152,kk2int;	tempfrac,15;
SUB issatint;	SPLK	SACH tempfrac;
BCND	#16017,kk2frac;	SETC SXM; r
LEQISMAX,LT;	LT kk1frac;	MPY diqfrac;
;now iscom is sat.	MPY rpm;	PAC;
BIT iscomint,0;	PAC; AC	SACH
BCND	SFL; be c	ttempfrac,1;
POSISCOM,NTC;	SACH tempint;	LACC
;now iscom<0	SACL tempfrac;	ttempfrac;
LACC issatint;	CLRC SXM;	ADD tempfrac;
NEG;	LACC	ADD kk2frac;
SACL iscomint;	tempfrac,15	SFL;
LACC	SACH tempfrac;	SACH ttempint;
issatfrac,15;	SETC SXM;	SACL
NEG;	LACC tempfrac;	ttempfrac;
SACH iscomfrac,1;	ADD kk2frac;	CLRC SXM;
B LEQISMAX;	SUB diqfrac;	LACC
POSISCOM:	SFL;	ttempfrac,15;
LACC issatint;	SACH ttempint;	SACH
SACL iscomint;	LACC tempint;	ttempfrac;
LACC issatfrac;	ADD kk2int;	SETC SXM;
SACL iscomfrac;	SUB diqint;	;end i+f=f+f+f
LEQISMAX: BIT iscomint,0;	ADD ttempint;	LACC ttempint;
BCND GEQIS,NTC;	BCND	ADD tempint;

ADD	kk2int;	iqcomfrac,15;			LACC	
SACL	ttempint;	SACH			ttempfrac;	
LT	diqint;	iqcomfrac;			ADD	tempfrac;
MPY	ttempint;	SETC	SXM;		ADD	kk2frac;
PAC;		LACC	iqcomint;		SFL;	
SACL	tempint;	ADD	temp;		SACH	ttempint;
MPY		ADD	kk2int;		SACL	
ttempfrac;		ADD	tempint;		ttempfrac;	
PAC;		SACL			CLRC	SXM;
SFL;		iqcomint;;			LACC	
SACH	kk2int;	BIT			ttempfrac,15;	
SACL	kk2frac;	iscomint,0;			SACH	
CLRC	SXM;	BCND			ttempfrac;	
LACC		STIDCOM,NTC;			SETC	SXM;
kk2frac,15;		LACC	iqcomint;		LACC	ttempint;
SACH	kk2frac;	NEG;			ADD	tempint;
SETC	SXM;	SACL	iqcomint;		ADD	kk2int;
LT	diqfrac;	LACC			SACL	ttempint;
MPY		iqcomfrac,15;			LT	diqint;
ttempfrac;		NEG;			MPY	ttempint;
PAC;		SACH			PAC;	
SACH		iqcomfrac,1;			SACL	tempint;
tempfrac,1;		STIDCOM;			MPY	
MPY	ttempint;	SPLK	#-286,kk1frac;		ttempfrac;;	
PAC;		SPLK	#0,kk2int;0		PAC;	
SFL;		SPLK	#-1788,kk2frac;		SFL;	
SACH	temp;	SPLK	#3902,kk3frac;		SACH	kk2int;
SACL	kk1frac;	LT	kk1frac;		SACL	kk2frac;
CLRC	SXM;	MPY	diqint;		CLRC	SXM;
LACC		PAC;			LACC	kk2frac,15;
kk1frac,15;		SFL;	so		SACH	kk2frac;
SACH	kk1frac;	SACH	tempint;		SETC	SXM;
SETC	SXM;	SACL	tempfrac;		LT	diqfrac;
LACC	kk1frac;	CLRC	SXM; o		MPY	
ADD	kk2frac;	LACC			ttempfrac;	
ADD	tempfrac;	tempfrac,15;			PAC;	
ADD	kk3frac;	SACH	tempfrac;		SACH	
SFL;		SETC	SXM;		tempfrac,1;	
SACH	iqcomint;	;end i+f=i*f			MPY	ttempint;
SACL		MPY	diqfrac;		PAC;	
iqcomfrac;		PAC;			SFL;	
CLRC	SXM;	SACH			SACH	temp;
LACC		ttempfrac,1;			SACL	kk1frac;

	CLRC	SXM;		LT	kk1frac;		ADD	kk2frac;
	LACC	kk1frac,15;		MPY	rpm;		SFL;	
	SACH	kk1frac;		PAC;			SACH	ttempint;
	SETC	SXM;		SFL;		in		
	LACC	kk1frac;		SACH	tempint;		SACL	
	ADD	kk2frac;	==1				vdcomfrac;	
	ADD	tempfrac;		SACL			CLRC	SXM;
	ADD	kk3frac;	vdpicomfrac;				LACC	
	SFL;			CLRC	SXM;		vdcomfrac,15;	
	SACH	idcomint;		LACC			SACH	vdcomfrac;
t			vdpicomfrac,15;			f		
	SACL		SACH				SETC	SXM; r
idcomfrac;			vdpicomfrac;				LACC	tempint;
	CLRC	SXM;		SETC	SXM;		ADD	ttempint;
	LACC	idcomfrac,15;		SPLK	#-		ADD	kk2int;
	SACH		32767,tempint;				SACL	
idcomfrac;			LACC				vdcomint,f	
	SETC	SXM;	tempint,15;				SPLK	#-
	LACC	idcomint;	ADD				878,kk1frac;	
	ADD	temp;	vdpicomfrac,15;				SPLK	#100,kk2int;
	ADD	kk2int;	ADD				SPLK	
	ADD	tempint;	kk2frac,15;				#13210,kk2frac;	
	SACL	idcomint;	SACH				LT	kk1frac;
B	AILOOP;		vdpicomfrac,1;				MPY	rpm;
FWVDQOGEQ:			SPLK				PAC;	
	SPLK	#100,t2new;	#22,kk1frac;				SFL;	
OUT	t2new,DAC2;s		SPLK	#-			SACH	tempint;
OUT	t2new,DAC_UPDATE;		4,kk2int;				SACL	tempfrac;
	LACC	rpm;	SPLK	#-			CLRC	SXM;
	SUB	#3750;	12679,kk2frac;				LACC	
	BCND		LT	kk1frac;		tempfrac,15;		
FW_SEC1,LEQ;			MPY	rpm;		SACH	tempfrac;	
	;now rpm>3750;		PAC;	)		SETC	SXM;	
	SUB	#500;;	SFL;	so		LACC	tempfrac;	
	BCND		SACH	tempint;		ADD	kk2frac;	
FW_SEC2,LEQ;			y			SFL;		
	;now rpm>4250 in sec3		SACL	tempfrac;		SACH	ttempint;	
	B	FW_SEC3;	CLRC	SXM; so		SACL	idkfrac;	
FW_SEC1:			LACC			CLRC	SXM;	
	SPLK	#-	tempfrac,15;			LACC		
1,kk1frac;			SACH	tempfrac;	idkfrac,15;			
	SPLK	#-	SETC	SXM;		SACH		
11469,kk2frac;			LACC	tempfrac;	idkfrac;;			

SPLK	#-	LACC	LACC	tempint;	
672, kk1frac;		vqpicomfrac, 15;	ADD	ttempint;	
SPLK	#76, kk2int;	SACH	ADD	kk2int;	
SPLK		vqpicomfrac; 1	SACL	vqcomint;	
#29491, kk2frac;		SETC	SXM; M	B	
LT	kk1frac;	LACC	FW_IDQSCOM;		
MPY	rpm;	vqpicomfrac, 15;	FW_SEC3:		
PAC;	AC	ADD	SPLK	#-	
SFL;	be ca	kk2frac, 15;	1, kk1frac;		
SACH	tempint;	SACH	SPLK	#-	
SACL	tempfrac;	vqpicomfrac, 1;	11633, kk2frac;		
CLRC	SXM; so	SPLK	LT	kk1frac;	
LACC	tempfrac, 15;	40, kk1frac;	MPY	rpm;	
SACH	tempfrac;	SPLK	PAC;	A	
SETC	SXM; r	#10, kk2int;	SFL;	be ca	
LACC	tempfrac;	SPLK	SACH	tempint;	
ADD	kk2frac;	#2875, kk2frac;	SACL		
SFL;		LT	kk1frac;	vdpicomfrac;	
SACH	ttempint	MPY	rpm;	CLRC	SXM; be
SACL	idkfrac;	PAC;	)	LACC	
CLRC	SXM; o	SFL;		vdpicomfrac, 15;	
LACC		SACH	tempint;	SACH	
idkfrac, 15;		i *y		vdpicomfrac	
SACH	idkfrac;	SACL	tempfrac;	SETC	SXM; r
SETC	SXM; SXM	CLRC	SXM; b	SPLK	#-
LACC	tempint;	LACC		32767, tempint	
ADD	ttempint;	tempfrac, 15;	LACC		
ADD	kk2int;	SACH	tempfrac;	tempint, 15; -	
SACL	idkpint;	rl		ADD	
e;		SETC	SXM; r	vdpicomfrac, 15;	
SPLK		LACC	tempfrac;	ADD	kk2frac, 15;
#3, kk1frac;		ADD	kk2frac;	SACH	
SPLK	#-	SFL;	be care	vdpicomfrac, 1;	
19333, kk2frac;		SACH	ttempint;	SPLK	
LT		iny		#8, kk1frac;	
kk1frac;		SACL		SPLK	#-
MPY	rpm;	vqcomfrac;		2, kk2int;	
PAC;	)	CLRC	SXM; be c	SPLK	#-
SFL;	so	LACC		24810, kk2frac;	
SACH	tempint;	vqcomfrac, 15;		LT	kk1frac;
SACL		SACH		MPY	rpm;
vqpicomfrac;		vqcomfrac;		PAC;	A
CLRC	SXM; bo	SETC	SXM;	SACH	tempint

SACL	tempfrac;	SACH	ttempint;	SFL;	b
CLRC	SXM;	SACL	idkpfrac;	SACH	tempint;
LACC	tempfrac,15;	CLRC	SXM; b	i	
SACH	tempfrac;	LACC		SACL	tempfrac;
SETC	SXM; r	idkpfrac,15;		CLRC	SXM; be
LACC	tempfrac;	SACH		LACC	
ADD	kk2frac;	idkpfrac;;		tempfrac,15;	
SFL;		SETC	SXM;	SACH	tempfrac;
SACH	ttempint;	LACC	tempint;	SETC	SXM;
SACL		ADD	ttempint;	LACC	tempfrac;
vdcomfrac;		ADD	kk2int;	ADD	kk2frac;
CLRC	SXM; b	SACL	idkpint;f	SFL;	
LACC		SPLK		SACH	ttempint;
vdcomfrac,15;		#2,kk1frac;		SACL	
SACH		SPLK	#-	vqcomfrac;	
vdcomfrac;		15483,kk2frac;		CLRC	SXM;
SETC	SXM;	LT	kk1frac;	LACC	
LACC	tempint;	MPY	rpm;	vqcomfrac,15;	
ADD	ttempint;	PAC;	AC	SACH	
ADD	kk2int;	SFL;	b	vqcomfrac;	
SACL	vdcomint;	SACH	tempint;	SETC	SXM;
SPLK	#-	SACL		LACC	tempint;
535,kk1frac;		vqpicomfrac;		ADD	ttempint;
SPLK		CLRC	SXM; be	ADD	kk2int;
#59,kk2int;		LACC		SACL	
SPLK		vqpicomfrac,15;		vqcomint;f	
#5664,kk2frac;		SACH		FW_IDQSCOM:	
LT	kk1frac;	vqpicomfrac; rnal		SPLK	#-
MPY	rpm;	SETC	SXM;	819,iqkpfrac;	
PAC;	A	LACC		SPLK	
SFL;		vqpicomfrac,15;		#6448,tttfrac;	
SACH	tempint;	ADD		LT	tttfrac;
i		kk2frac,15;-0		MPY	diqint;
SACL	tempfrac;	SACH		PAC;	
CLRC	SXM;	vqpicomfrac,1;		SFL;	
LACC		SPLK	#-	SACH	tempint;
tempfrac,15;		26,kk1frac;		SACL	tempfrac;
SACH	tempfrac;	SPLK	#8,kk2int;	CLRC	SXM; be
r		SPLK		LACC	
SETC	SXM;	#10387,kk2frac;		tempfrac,15;	
LACC	tempfrac;	LT	kk1frac;	SACH	tempfrac;
ADD	kk2frac;	MPY	rpm;	SETC	SXM;
SFL;	be c	PAC;		MPY	diqfrac;

PAC;		LACC		LACC	idcomfrac;
SACH		tempfrac,15;		ADD	
didfrac,1;		SACH	tempfrac;	ttempfrac;	
LACC	didfrac;	fie;		ADD	tttfrac;
ADD	tempfrac;	SETC	SXM;	ADD	idkpfrac;
SFL;		LACC	tempint;	SFL;	
SACH	ttempint;	ADD	ttempint;	SACH	templ; iy
SACL	didfrac;	ADD	vdcomint;	SACL	
CLRC	SXM; be	SACL	tempint;	idcomfrac;	
LACC	didfrac,15;	LT	didfrac;	CLRC	SXM; beo
SACH	didfrac;	MPY	tempint;	LACC	
SETC	SXM; r	PAC;		idcomfrac,15;	
LACC	ttempint;	SFL;	o	SACH	idcomfrac;
ADD	tempint;	SACH	ttempint;	c	
SACL	didint;	i		SETC	SXM;
e;		SACL		LACC	idcomint;
LT		ttempfrac;		ADD	templ;
vdpicomfrac;		CLRC	SXM; o	ADD	ttempint;
MPY	didint;	LACC		ADD	tttint;
PAC;		ttempfrac,15;		ADD	idkpint;
SFL;	b	SACH		SACL	
SACH	tempint;	ttempfrac;		idcomint,f;	
i		SETC	SXM;	LT	
SACL	tempfrac;	LT	tempfrac;	vqpicomfrac;	
CLRC	SXM; beo	MPY	didint;	MPY	didint;
LACC		PAC;	)	PAC;	
tempfrac,15;		SFL;	o	SFL;	
SACH	tempfrac;	SACH	tttint;	SACH	tempint;
rl		SACL	tttfrac;	SACL	tempfrac;
SETC	SXM;	CLRC	SXM; o	CLRC	SXM; be
MPY	didfrac;	LACC		LACC	
PAC;		tttfrac,15;		tempfrac,15;	
SACH		SACH	tttfrac;	SACH	tempfrac;
ttempfrac,1;		l		rl	
LACC	tempfrac;	SETC	SXM;	SETC	SXM; r
ADD		MPY	didfrac;	MPY	didfrac;
ttempfrac;		PAC;		PAC;	
ADD		SACH		SACH	
vdcomfrac;		idcomfrac,1;bp		ttempfrac,1;	
SFL;		LT	didint;	LACC	tempfrac;
SACH	ttempint;	MPY	tempint;	ADD	
SACL	tempfrac;	PAC;		ttempfrac;	
CLRC	SXM;	SACL	idcomint;b	ADD	

vqcomfrac;		MPY	tempint;	LACC	idcomfrac;
SFL;	be c	PAC;		SUB	idfrac;
SACH	ttempint;	SACL	iqcomint;	SFL;	
SACL	tempfrac;	LACC		SACH	tempint;
CLRC	SXM;	iqcomfrac;		SACL	tempfrac;
LACC		ADD		CLRC	SXM;
tempfrac,15;		ttempfrac;		LACC	tempfrac,15;
SACH	tempfrac;	ADD	tttfrac;	SACH	didfrac;
SETC	SXM;	ADD	iqkfrac;	SETC	SXM;
LACC	tempint;	SFL;	be car	;-----	
ADD	ttempint;	SACH	templ; in	LACC	tempint;
ADD	vqcomint;	SACL		ADD	didint;
SACL	tempint;	iqcomfrac;		SACL	didint;
LT	didfrac;	CLRC	SXM; be	;-----start diq-----	
MPY	tempint;	LACC		LACC	iqcomint;
PAC;		iqcomfrac,15;		SUB	iqint;
SFL;		SACH	iqcomfrac;	SACL	diqint;
SACH	ttempint;	fc		;-----	
SACL		SETC	SXM;	LACC	iqcomfrac;
ttempfrac;		LACC	iqcomint;	SUB	iqfrac;
CLRC	SXM;	ADD	templ;	SFL;	
LACC		ADD	ttempint;	SACH	tempint;
ttempfrac,15;		ADD	tttint;	SACL	tempfrac;
SACH		SACL		CLRC	SXM;
ttempfrac;		iqcomint;;		LACC	tempfrac,15;
SETC	SXM;	BIT		SACH	diqfrac;
LT	tempfrac;	iscomint,0;si		SETC	SXM;
MPY	didint;	BCND		;-----	
PAC;	)	AILOOP,NTC;T		LACC	tempint;
SFL;	o	LACC	iqcomint;	ADD	diqint;
SACH	tttint; y	NEG;		SACL	diqint;
SACL	tttfrac;	SACL	iqcomint;	;---end of idq error--	
CLRC	SXM; o	LACC			
LACC		iqcomfrac,15;		LT	idkp;
tttfrac,15;		NEG;		MPY	didint;
SACH	tttfrac;	SACH		PAC;	
al		iqcomfrac,1;		SACL	tempint;
SETC	SXM;	AILOOP: SPLK #0,spindex;		;-----	
MPY	didfrac;			MPY	didfrac;
PAC;		LACC	idcomint;	PAC;	
SACH		SUB	idint;	SFL;	
iqcomfrac,1;		SACL	didint;	SACH	ttempint;
LT	didint;	;-----		SACL	ttempfrac;

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CLRC    SXM;
LACC    ttempfrac,15;
SACH    idkpfrac;
SETC    SXM;
;----
;----start id --
LT      idkpf;
MPY     didint;
PAC;
SFL;
SACH    tttint;
SACL    tttfrac;
CLRC    SXM;
LACC    tttfrac,15;
SACH    tttfrac;
SETC    SXM;
;----frac*frac-----
MPY     didfrac;
PAC;
SACH    tempfrac,1;
;-----
LACC    idkpfrac;
ADD     tttfrac;
ADD     tempfrac;
SFL;
SACH    temp;
SACL    idkpfrac;
CLRC    SXM;
LACC    idkpfrac,15;
SACH    idkpfrac;
SETC    SXM;
;-----
LACC    tempint;
ADD     ttempint;
ADD     tttint;
ADD     temp;
SACL    idkpint;
;----end id frac P-loop-
;-----start iq P-loop-
LT      iqkp;
MPY     diqint;
PAC;
SACL    tempint;

;-----
MPY     diqfrac;
PAC;
SFL;
SACH    ttempint;
SACL    ttempfrac;
CLRC    SXM;
LACC    ttempfrac,15;
SACH    iqkpfrac;
SETC    SXM;
;-----
LT      iqkpf;
MPY     diqint;
PAC;
SFL;
SACH    tttint;
SACL    tttfrac;
CLRC    SXM;
LACC    tttfrac,15;
SACH    tttfrac;
SETC    SXM;
;----frac*frac-----
MPY     diqfrac;
PAC;
SACH    tempfrac,1;
;-----
LACC    iqkpfrac;
ADD     tttfrac;
ADD     tempfrac;
SFL;
SACH    temp;
SACL    iqkpfrac;
CLRC    SXM;
LACC    iqkpfrac,15;
SACH    iqkpfrac;
SETC    SXM;
;-----
LACC    tempint;
ADD     ttempint;
ADD     tttint;
ADD     temp;
SACL    iqkpint;f
SPLK    #p01,kklfrac;

LT      kklfrac;
MPY     didint;
PAC;
SFL;
SACH    tttint;(
SACL    tempfrac;(
CLRC    SXM;
LACC    tempfrac,15;
SACH    tempfrac;
SETC    SXM;
;-----
MPY     didfrac;
PAC;
SACH    ttempfrac,1;f
;-----
LACC    tempfrac;
ADD     ttempfrac;
SFL;
SACH    tempint;*
SACL    didfrac;
CLRC    SXM;
LACC    didfrac,15;
SACH    didfrac;
SETC    SXM;
;-----
LACC    tempint;
ADD     tttint;
SACL    didint
;----start I-loop-----
LT      idkidt
MPY     didint;
PAC;
SFL;
SACH    tttint;(
SACL    tempfrac;(
CLRC    SXM;
LACC    tempfrac,15;
SACH    tempfrac;
SETC    SXM;
;-----
MPY     didfrac;
PAC;
SACH    ttempfrac,1;

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;	-----	MPY	diqint; id	ABS;	
LACC	tempfrac;	PAC;		SUB	#50;
ADD	ttempfrac;	SFL;		BCND	YESIQSAT,GEQ;
ADD	idkifrac;	SACH	tttint; m	B	STIPICOM;
SFL;		SACL	tempfrac;n	YESIQSAT: BIT	iqkiint,0;
SACH	tempint;	CLRC	SXM;	BCND	POSIQKI,NTC;
SACL	temp;	LACC	tempfrac,15;	SPLK	#-
CLRC	SXM;	SACH	tempfrac;	50,iqkiint;	
LACC	temp,15;	SETC	SXM;	SPLK	#0,iqkifrac;
SACH	idkifrac;	;	-----	B	STIPICOM;
SETC	SXM;	MPY	diqfrac;	POSIQKI: SPLK	#50,iqkiint;
;	-----	PAC;		SPLK	#0,iqkifrac;
LACC	idkiint;	SACH	ttempfrac,1;	STIPICOM: LACC	idkpfrac;
ADD	tempint;	;	-----	ADD	idkifrac;
ADD	tttint;	LACC	tempfrac;	SFL;	
SACL	idkiint;	ADD	ttempfrac;	SACH	tempint;
LT	kk1frac;	ADD	iqkifrac;	SACL	tempfrac;
MPY	diqint;	SFL;		CLRC	SXM;
PAC;		SACH	tempint;	LACC	tempfrac,15;
SFL;		SACL	temp;	SACH	vdpiacomfrac;
SACH	tttint;	CLRC	SXM;	SETC	SXM;
SACL	tempfrac;	LACC	temp,15;	LACC	idkpint;
CLRC	SXM;	SACH	iqkifrac;i	ADD	idkiint;
LACC	tempfrac,15;	SETC	SXM;	ADD	tempint;
SACH	tempfrac;	;	-----	SACL	vdpiacomint;
SETC	SXM;	LACC	iqkiint;	LACC	iqkpfrac;
;	-----	ADD	tempint;	ADD	iqkifrac;
MPY	diqfrac;	ADD	tttint;must	SFL;	
PAC;		SACL	iqkiint;	SACH	tempint;
SACH	ttempfrac,1;	LACC	idkiint;	SACL	tempfrac;
LACC	tempfrac;	ABS;		CLRC	SXM;
ADD	ttempfrac;	SUB	#50;	LACC	tempfrac,15;
SFL;		BCND	YESIDSAT,GEQ;	SACH	vqpicomfrac;
SACH	tempint;	B	STIQ;	SETC	SXM;
SACL	diqfrac;	YESIDSAT: BIT	idkiint,0;	;	-----
CLRC	SXM;	BCND	POSIDKI,NTC;	LACC	iqkpint;
LACC	diqfrac,15;	SPLK	#-	ADD	iqkiint;
SACH	diqfrac;	50,idkiint;		ADD	tempint;
SETC	SXM;	SPLK	#0,idkifrac;	SACL	vqpicomint;
LACC	tempint;	B	STIQ;	LACC	vdpiacomfrac;
ADD	tttint;	POSIDKI: SPLK	#50,idkiint;	ADD	vd0frac;
SACL	diqint	SPLK	#0,idkifrac;	SFL;	
LT	iqkidt	STIQ: LACC	iqkiint;	SACH	tempint;

SACL	vdcomfrac;f	B	DIV2;	SPLK	#-24085, kk1frac
CLRC	SXM;	DOVDQ: ;	SPLK #-	SPLK	#1, kk2int; 1
LACC	vdcomfrac, 15;	45, vdcomint;		SPLK	#12318, kk2frac;
SACH	vdcomfrac;	; SPLK		SPLK	#6578, kk3frac;
SETC	SXM;	#40, vqcomint;	B	VDSQRTX;	
		LT	vdcomint;	VDSEC2: SPLK	#-4, kk1int;
		MPY	vdcomint;	SPLK	#-8251, kk1frac
LACC	vdpicomint;	PAC;		SPLK	#2, kk2int; 2
ADD	vd0int;	SACL	tempint;v	SPLK	#15199, kk2frac;
ADD	tempint;	LT	vqcomint;	SPLK	#3684, kk3frac;
SACL	vdcomint;	MPY	vqcomint;	B	VDSQRTX;
;-----start vqcomint--			PAC;	;---end of section 2-	
LACC	vqpicomfrac;	SACL	ttempint;v	VDSEC1: SPLK	#-51, kk1int;
ADD	vq0frac;	LACL	ttempint;mu	SPLK	#-
SFL;		ADD	tempint;	17610, kk1frac;-	
SACH	tempint;	SACL	tttint;	SPLK	#6, kk2int; 4
SACL	vqcomfrac;	LACL	tttint;	SPLK	#5256, kk2frac;
CLRC	SXM;	SUB	#2500;	SPLK	#1244, kk3frac;
LACC	vqcomfrac, 15;	BCND	LINEAR, LEQ;	VDSQRTX: LT	d2frac;
SACH	vqcomfrac;	SPLK	#2000, svam;	MPY	d2frac;
SETC	SXM;	ZALR	tempint;	PAC;	
		RPT	#14	SACH	
LACC	vqpicomint;	SUBC	tttint;	templ, 1;	
ADD	vq0int;	SACL	d2frac;		
ADD	tempint;	ZALR	ttempint;	LT	
SACL	vqcomint;	RPT	#14	templ;	
LACC	vdcomint;	SUBC	tttint;	MPY	
ABS;		SACL	q2frac	kk1int;	
SUB	#180;	LACC	d2frac; loas	PAC;	
BCND	NEXTVQ, LEQ;	SUB	#1638;	SFL;	be
DIV2: LACC	vdcomint;	BCND	VDSEC1, LEQ;	SACH	
SFR;		SUB	#3277; 1638+3	tempint;	
SACL	vdcomint;	BCND	VDSEC2, LEQ;	SACL	
SPLK	#0, vdcomfrac;	SUB	#11469; 4915+	tempfrac;	
LACC	vqcomint;	BCND	VDSEC3, LEQ;	CLRC	SXM;
SFR;		;---start section 4---			be
SACL	vqcomint;	VDSEC4: SPLK	#0, kk1int; 0	LACC	
SPLK	#0, vqcomfrac;	SPLK	#-6504, kk1frac;	tempfrac, 15;	
B	DOVDQ;	SPLK	#0, kk2int; 1	SACH	
NEXTVQ: LACC	vqcomint;	SPLK	#28838, kk2frac;	tempfrac;	
ABS;		SPLK	#10409, kk3frac;	SETC	SXM;
SUB	#180;	B	VDSQRTX;	MPY	
BCND	DOVDQ, LEQ; a	VDSEC3: SPLK	#0, kk1int;	kk1frac;	

	PAC;		SUB	#3277;16		SACH	
	SACH		BCND	VQSEC2,LEQ;	tempint;		
ttempfrac,1;			SUB	#11469;491		SACL	
	LT		BCND	VQSEC3,LEQ;	tempfrac;		
d2frac;			;---start section 4-			CLRC	SXM;
	MPY		VQSEC4: SPLK	#0,kklint;	b		
kk2int;			SPLK	#-6504,kk1frac;		LACC	
	PAC;		SPLK	#0,kk2int;	tempfrac,15;		
A			SPLK	#28838,kk2frac;		SACH	
	SFL;	be	SPLK	#10409,kk3frac;	tempfrac;		
	SACH		B	VQSQRX;		SETC	SXM;
tttint;			VQSEC3: SPLK	#0,kklint; -2		MPY	
	SACL		SPLK	#-	kk1frac;		
tttfrac;			24085,kk1frac;			PAC;	
	CLRC	SXM;	SPLK	#1,kk2int; 1		SACH	
be			SPLK	#12318,kk2frac;	ttempfrac,1;		
	LACC		SPLK	#6578,kk3frac;		LT	
tttfrac,15;			B	VQSQRX;	q2frac;		
	SACH		VQSEC2: SPLK	#-4,kklint;		MPY	
tttfrac;			SPLK	#-8251,kk1frac;	kk2int;		
	SETC	SXM	SPLK	#2,kk2int; 2		PAC;	
	MPY		SPLK	#15199,kk2frac;		SFL;	
kk2frac;			SPLK	#3684,kk3frac;		SACH	
	PAC;		B	VQSQRX;	tttint;		
	SACH		;---end of section 2-			SACL	
templ,1;			VQSEC1: SPLK	#-51,kklint;	tttfrac;		
	LACC	tempfrac;	SPLK	#-		CLRC	SXM;
	ADD		17610,kk1frac;			beo	
ttempfrac;			SPLK	#6,kk2int;		LACC	
	ADD	tttfrac;	SPLK	#5256,kk2frac;	tttfrac,15;		
	ADD	templ;	SPLK	#1244,kk3frac;		SACH	
	ADD	kk3frac;	VQSQRX: LT	q2frac;	tttfrac;		
	SFL;	b	MPY	q2frac;		SETC	SXM;
	;SACH	temp;	PAC;			MPY	
	SACL	sqrtd2;	SACH		kk2frac;		
	CLRC	SXM; b	templ,1;te;			PAC;	
	LACC		LT		SACH		
sqrtd2,15;			templ;		templ,1;		
	SACH	sqrtd2;	MPY		LACC	tempfrac;	
	SETC	SXM;	kklint;		ADD		
LACC	q2frac; lo		PAC;	)	ttempfrac;		
SUB	#1638; 1		SFL;	be	ADD	tttfrac;	
BCND	VQSEC1,LEQ;	careo			ADD	templ;	

ADD	kk3frac;	ADD	#1;	MPY	vqstar;
SFL;	be	SACL	vqstar;	PAC;	
;SACH	temp;	STVDQSIGN: BIT	vdcomint,0;	SFL;	
SACL	sqrtq2;	BCND	NEXTQ,NTC;	SACH	ttempint;
CLRC	SXM; b	LACC	vdstar;	SACL	ttempfrac;
LACC		NEG;		CLRC	SXM;
sqrtq2,15;		SACL	vdstar;	LACC	ttempfrac,15;
SACH	sqrtq2;	;----test vqcom-----		SACH	ttempfrac;
fc		NEXTQ: BIT	vqcomint,0;	SETC	SXM;
SETC	SXM;	BCND	POS,NTC;	MPY	vqstarfrac;
LT	vam;	LACC	vqstar;	PAC;	
MPY	sqrtd2;	NEG;		SACH	templ,1;
PAC;		SACL	vqstar;	LACC	tempfrac;
SFL;		B	POS;	ADD	ttfrac;
SACH	vdstar;	LINEAR:		ADD	
SACL	tempfrac;	SPLK	#0,svam;	ttempfrac;	
CLRC	SXM;	LACC	vdcomint;	ADD	templ;
LACC	tempfrac,15;	SACL	vdstar;	SFL;	
SACH	tempfrac;	LACC	vdcomfrac;	SACH	ttint;
SETC	SXM;	SACL		SACL	
SPLK	#0,vdstarfrac;	vdstarfrac;		vdstarfrac;	
LACC	tempfrac;	LACC	vqcomint;	CLRC	SXM;
SUB	#16384;=0.5	SACL	vqstar;	LACC	
BCND	D2GEQ,GEQ;	LACC	vqcomfrac;	vdstarfrac,15;	
B	CONTQ2;	SACL		SACH	vdstarfrac,e
D2GEQ: LACC	vdstar;	vqstarfrac;		SETC	SXM;
ADD	#1;	LT	costhre;	LACC	ttint;
SACL	vdstar;	MPY	vdstar;	ADD	ttempint;
CONTQ2:MPY	sqrtq2;	PAC;		ADD	tempint;
PAC;		SFL;		SACL	vdstar;
SFL;		SACH	tempint;	LT	sinthre;
SACH	vqstar;	SACL	tempfrac;	MPY	vdstar;
SACL	ttempfrac;	CLRC	SXM;	PAC;	
CLRC	SXM;	LACC	tempfrac,15;	SFL;	
LACC	ttempfrac,15;	SACH	tempfrac;	SACH	tempint;
SACH	ttempfrac;	SETC	SXM;	SACL	tempfrac;
SETC	SXM;	MPY	vdstarfrac;	CLRC	SXM;
SPLK	#0,vqstarfrac;	PAC;		LACC	tempfrac,15;
LACC	ttempfrac;	SACH	ttfrac,1;	SACH	tempfrac;
SUB	#16384;=0.5	LACC	sinthre,15;	SETC	SXM;
BCND	Q2GEQ,GEQ;	NEG;		MPY	vdstarfrac;
B	STVDQSIGN;	SACH	temp,1;t	PAC;	
Q2GEQ: LACC	vqstar;	LT	temp;	SACH	ttfrac,1;

LT	costhre;	PAC;	ADD	tempint;	
MPY	vqstar;	SFL;	SACL	vbsstar,e	
PAC;		SACH	LACC	tempfrac;	
SFL;		SACL	ADD	ttfrac;	
SACH	ttempint;	CLRC	SXM;	SUB	
SACL	ttempfrac;	LACC	tempfrac,15;	ttempfrac;	
CLRC	SXM;	SACH	tempfrac;	SUB	templ;
LACC	ttempfrac,15;	SETC	SXM;	SFL;	
SACH	ttempfrac;	MPY	vdsstarfrac;	SACH	ttint;
SETC	SXM;	PAC;		SACL	
MPY	vqstarfrac;	SACH	ttfrac,1;	vesstarfrac;	
PAC;		SPLK		CLRC	SXM;
SACH	templ,1;	#p866d,kklfrac;		LACC	
LACC	tempfrac;	LT	klfrac;kk	vesstarfrac,15;	
ADD	ttfrac;	MPY	vqsstar;	SACH	
ADD		PAC;		vesstarfrac	
ttempfrac;		SFL;		SETC	SXM;
ADD	templ;	SACH	ttempint;	LACC	tempint;
SFL;		SACL	ttempfrac;	SUB	ttempint;
SACH	ttint;	CLRC	SXM;	ADD	ttint;
SACL		LACC	ttempfrac,15;	SACL	vesstar;
vqsstarfrac;		SACH	ttempfrac;	SPLK	
CLRC	SXM;	SETC	SXM;	#off500,templ;t	
LACC		MPY	vqsstarfrac;	SPLK	
vqsstarfrac,15;		PAC;		#ten,temp;	
SACH	vqsstarfrac;	SACH	templ,1;	LT	temp;temp=10;
SETC	SXM;	LACC	tempfrac;	MPY	vasstarfrac;
LACC	ttint;	ADD	ttfrac;	PAC;	
ADD	ttempint;	ADD		SFL;	
ADD	tempint;	ttempfrac;		SACH	tempint;
SACL		ADD	templ;	MPY	vasstar;
vqsstar;enr		SFL;		PAC;ACC=vasstar*10	
LACC	vdsstar;	SACH	ttint;	ADD	tempint;
SACL	vasstar;	SACL		ADD	templ;
r		vbsstarfrac;		SACL	cmpra;
LACC		CLRC	SXM;	LACC	adca;
vdsstarfrac;		LACC		BCND	IAGT0,GT;
SACL		vbsstarfrac,15;		ADD	#iband;A
vasstarfrac;		SACH		BCND	IALEQN1,LEQ;
SPLK		vbsstarfrac;		B	OKIA;
#negp5d,kklfrac;		SETC	SXM;	IALEQN1: LACC	cmpra;
LT	klfrac;	LACC	ttint;	SUB	#dbconst;
MPY	vdsstar;	ADD	ttempint;	SACL	cmpra;

B	OKIA;	NEXTVC:	LACC	cmprc;
IAGT0:	SUB #iband;i	MPY vcsstarfrac;	LDP	#DP_EV;
BCND	IAGEQ1,GEQ;	PAC;	SACL	CMPR3;
B	OKIA;	SFL;	CONSAVE:	LDP
IAGEQ1:	LACC cmpra;	SACH tempint;	#DP_EV;	
ADD	#dbconst;i	MPY vcsstar;	SPLK	
SACL	cmpra;mus	PAC;ACC=vcsstar*10	#0ffffh,EVIFRA;	
OKIA:	LACC cmpra;	ADD tempint;	MAR *+; s	
BCND	GEQA0,GEQ;	ADD templ;	LACL *+; res	
SPLK	#0,cmpra;	SACL cmprc;	ADD *+,16; r	
B	NEXTVB;	LACC adcc;	LST #0,*;7	
GEQA0:	SACL cmpra;	BCND ICGT0,GT;	CLRC INTM;	
NEXTVB:	;LT temp; 0;	;ic<=0	RET;	
MPY	vbsstarfrac;	ADD #iband;	;***** end of gisr2	
PAC;		BCND ICLEQN1,LEQ;		
SFL;		B OKIC;	;***** start nmi_isr*	
SACH tempint;		ICLEQN1: LACC cmprc;	nmi_isr:	
MPY vbsstar;		SUB #dbconst;	MAR *,AR0;	
PAC;ACC=vbsstar*10		SACL cmprc;	SST #0,*;	
ADD tempint;		B OKIC;	;----- end of push ----	
ADD templ; t		ICGT0: SUB #iband;	LDP #DP_EV;	
SACL cmprb;		BCND ICGEQ1,GEQ;	SPLK #0,T2CNT;	
LACC adcb;		B OKIC;	;LDP #DP_PF1; mu	
BCND IBGT0,GT;		ICGEQ1: LACC cmprc;	;BIT NMICR,0; m	
;ib<=0		ADD #dbconst;i	;SPLK	
ADD #iband;		SACL cmprc;	#00000h,NMICR;	
BCND IBLEQN1,LEQ;		OKIC: LACC cmprc;	;LDP #DP_PF1;	
B OKIB;		BCND GEQC0,GEQ;	;BIT SYSSR,15;	
IBLEQN1: LACC cmprb;		SPLK #0,cmprc;	;NOP; OK	
SUB #dbconst;		B ENDVC;	LST #0,*;	
SACL cmprb;		GEQC0: SACL cmprc;	CLRC INTM;	
B OKIB;		ENDVC: LDP	RET;	
IBGT0: SUB #iband;i		#DP_VAR;		
BCND IBGEQ1,GEQ;		LACC cmpra;		
B OKIB;		LDP #DP_EV;		
IBGEQ1: LACC cmprb;		SACL CMPR1;		
ADD #dbconst;is		LDP		
SACL cmprb;mu		#DP_VAR;		
OKIB: LACC cmprb;		LACC cmprb;		
BCND GEQB0,GEQ;		LDP #DP_EV;		
SPLK #0,cmprb;		SACL CMPR2;		
B NEXTVC;		LDP		
GEQB0: SACL cmprb;		#DP_VAR;		