&ACCESS RVP

&REL 20

&PARAM EDITMASK = \*

&PARAM TEMPLATE = C:\KRC\Roboter\Template\vorgabe

DEF Main\_002( )

;FOLD INI;%{PE}

;FOLD BASISTECH INI

GLOBAL INTERRUPT DECL 3 WHEN $STOPMESS==TRUE DO IR\_STOPM ( )

INTERRUPT ON 3

BAS (#INITMOV,0 )

;ENDFOLD (BASISTECH INI)

;FOLD USER INI

;Make your modifications here

;ENDFOLD (USER INI)

;ENDFOLD (INI)

;velocity coefficients

$VEL.CP = 1.0 ;m/s velocity of the robot (max 2.0)

$OV\_PRO = 100 ;% program velocity

pallet1\_num\_init = 10 ;initial quantity of pallets at place 1

pallet1\_num = pallet1\_num\_init ;current quantity of pallets at place 1

pallet2\_num\_init = 10 ;initial quantity of pallets at place 2

pallet2\_num = pallet2\_num\_init ;current quantity of pallets at place 2

X\_box = 395 ;length of the box, [mm]

Y\_box = 190 ;width of the box, [mm]

Z\_box = 122 ;height of the box, [mm]

Z\_washer = 20 ; height of the washer, [mm]

Z\_pallet = 200 ; height of the pallet, [mm]

; Robot is near the HOME position

WAIT FOR ($IN\_HOME == TRUE)

; $CYCFLAG[3] = Appr\_sensor\_signal\_1 AND Appr\_sensor\_signal\_2

;FOLD PTP HOME Vel= 100 % DEFAULT;%{PE}%MKUKATPBASIS,%CMOVE,%VPTP,%P 1:PTP, 2:HOME, 3:, 5:100, 7:DEFAULT

$BWDSTART = FALSE

PDAT\_ACT=PDEFAULT

FDAT\_ACT=FHOME

BAS (#PTP\_PARAMS,100 )

$H\_POS=XHOME

PTP XHOME

;ENDFOLD

INITIALIZE()

; wait for signal start program

WAIT FOR (External\_Start)

LOOP

current\_pallet\_layer1 = 1 ;number of the current layer of pallets at place point 1

current\_pallet\_layer2 = 1 ;number of the current layer of pallets at place point 2

current\_box\_layer1 = 1 ;number of the current layer of boxes at place point 1

current\_box\_layer2 = 1 ;number of the current layer of boxes at place point 2

current\_box\_layer\_side1 = 1 ; 1 - left side of the boxes at place point 1, 2 - right side

current\_box\_layer\_side2 = 1 ; 1 - left side of the boxes at place point 2, 2 - right side

Kz\_washer1 = 0 ; number of placed washers at place 1

Kz\_washer2 = 0 ; number of placed washers at place 2

; proverka koda so skanera

; check the code of the product on the line 1

IF ($FLAG[6] == FALSE) THEN

;$MSG\_T.TYP = #quit

;$MSG\_T.KEY[]="Kod producta na linii 1 i programmy ne sovpadayut" ;MSG

;$MSG\_T.VALID=TRUE ;vivvod MSG

; wait for aknowledgement

;WHILE $MSG\_T.VALID == true

; WAIT SEC 0.05

;ENDWHILE

ENDIF

;FOLD WAIT FOR ( FLAG[6] );%{PE}%R 8.3.22,%MKUKATPBASIS,%CEXT\_WAIT\_FOR,%VEXT\_WAIT\_FOR,%P 2:, 4:, 5:FLAG[6], 6:1, 7:, 9:

WAIT FOR ( ($FLAG[6]) )

;ENDFOLD

; check the code of the product on the line 2

IF ($FLAG[7] == FALSE) THEN

;$MSG\_T.TYP = #quit

;$MSG\_T.KEY[]="Kod producta na linii 2 i programmy ne sovpadayut" ;MSG

;$MSG\_T.VALID=TRUE ;vivvod MSG

; wait for aknowledgement

;WHILE $MSG\_T.VALID == true

; WAIT SEC 0.05

;ENDWHILE

ENDIF

;FOLD WAIT FOR ( FLAG[7] );%{PE}%R 8.3.22,%MKUKATPBASIS,%CEXT\_WAIT\_FOR,%VEXT\_WAIT\_FOR,%P 2:, 4:, 5:FLAG[7], 6:1, 7:, 9:

WAIT FOR ( ($FLAG[7]) )

;ENDFOLD

; check the target number of layers from the controller

IF (L1\_Target\_Layers > 10) THEN

;$MSG\_T.TYP = #quit

;$MSG\_T.KEY[]="Zadano mnogo sloyev na meste 1" ;MSG

;$MSG\_T.VALID=TRUE ;vivvod MSG

; wait for aknowledgement

;WHILE $MSG\_T.VALID == true

; WAIT SEC 0.05

;ENDWHILE

ELSE

IF (L1\_Target\_Layers == 0) THEN

;$MSG\_T.TYP = #quit

;$MSG\_T.KEY[]="Zadano 0 sloyev na meste 1" ;MSG

;$MSG\_T.VALID=TRUE ;vivvod MSG

; wait for aknowledgement

;WHILE $MSG\_T.VALID == true

; WAIT SEC 0.05

;ENDWHILE

ENDIF

;ELSE

IF (L1\_Target\_Layers > 7) THEN

target\_layers\_number\_1 = L1\_Target\_Layers \* 2 + 2 ; for 2 washers and \*2 for right and left sides

;yENDIF

ELSE

target\_layers\_number\_1 = L1\_Target\_Layers \* 2 + 1 ; for 2 washers and \*2 for right and left sides

ENDIF

endif

; check the target number of layers from the controller

IF (L2\_Target\_Layers > 10) THEN

;$MSG\_T.TYP = #quit

;$MSG\_T.KEY[]="Zadano mnogo sloyev na meste 2" ;MSG

;$MSG\_T.VALID=TRUE ;vivvod MSG

; wait for aknowledgement

;WHILE $MSG\_T.VALID == true

; WAIT SEC 0.05

;ENDWHILE

ELSE

IF (L2\_Target\_Layers == 0) THEN

;$MSG\_T.TYP = #quit

;$MSG\_T.KEY[]="Zadano 0 sloyev na meste 2" ;MSG

;$MSG\_T.VALID=TRUE ;vivvod MSG

; wait for aknowledgement

;WHILE $MSG\_T.VALID == true

; WAIT SEC 0.05

;ENDWHILE

ENDIF

;ELSE

IF (L2\_Target\_Layers > 7) THEN

target\_layers\_number\_2 = L2\_Target\_Layers \* 2 + 2 ; for 2 washers and \*2 for right and left sides

;ENDIF

ELSE

target\_layers\_number\_2 = L2\_Target\_Layers \* 2 + 1 ; for 2 washers and \*2 for right and left sides

ENDIF

endif

FOR ip1 = 1 TO 2 ;cycles for placing 2 pallets at the right side

;FOLD WAIT FOR ( L1\_OK\_to\_Pick\_Pallet ) OR ( L2\_OK\_to\_Pick\_Pallet );%{PE}%R 8.3.22,%MKUKATPBASIS,%CEXT\_WAIT\_FOR,%VEXT\_WAIT\_FOR,%P 2:, 4:, 5:L1\_OK\_to\_Pick\_Pallet, 6:1, 7:, 9:OR, 10:, 12:, 13:L2\_OK\_to\_Pick\_Pallet, 14:1, 15:, 17:

WAIT FOR ( (L1\_OK\_to\_Pick\_Pallet) ) OR ( (L2\_OK\_to\_Pick\_Pallet) )

;ENDFOLD

IF ((L1\_OK\_to\_Pick\_Pallet) AND (SA\_L1\_Pallet\_St\_in)) THEN

flag\_pallet\_pick\_number = 1

pickpallet1(pallet1\_num)

pallet1\_num = pallet1\_num - 1

ELSE

IF ((L2\_OK\_to\_Pick\_Pallet) AND (SA\_L2\_Pallet\_St\_in)) THEN

flag\_pallet\_pick\_number = 2

pickpallet2(pallet2\_num)

pallet2\_num = pallet2\_num - 1

ENDIF

ENDIF

;FOLD WAIT FOR ( L1\_OK\_to\_Place\_Pallet );%{PE}%R 8.3.22,%MKUKATPBASIS,%CEXT\_WAIT\_FOR,%VEXT\_WAIT\_FOR,%P 2:, 4:, 5:L1\_OK\_to\_Place\_Pallet, 6:1, 7:, 9:

WAIT FOR ( (L1\_OK\_to\_Place\_Pallet) )

;ENDFOLD

IF ((L1\_OK\_to\_Place\_Pallet) AND (SA\_L1\_Pallet\_Pr\_in)) THEN

placepallet1(flag\_pallet\_pick\_number, ip1, Z\_pallet)

;ELSE

ENDIF

ENDFOR

FOR ib1 = 1 to target\_layers\_number\_1 ;cycles for placing 10 layers of boxes and one layer for washer at the right side

; check signal from controller to free pallet 1

IF (L1\_Pallet\_Eject\_Req) THEN

IF (ib1 <> target\_layers\_number\_1) THEN

L1\_Pallet\_Eject\_Part = TRUE

ELSE

L1\_Pallet\_Eject\_Full = TRUE

ENDIF

ib1 = target\_layers\_number\_1

;FOLD WAIT Time= 0.5 sec;%{PE}%R 8.3.22,%MKUKATPBASIS,%CWAIT,%VWAIT,%P 2:0.5

WAIT SEC 0.5

;ENDFOLD

;FOLD WAIT FOR ( L1\_Pallet\_Eject\_Ack );%{PE}%R 8.3.22,%MKUKATPBASIS,%CEXT\_WAIT\_FOR,%VEXT\_WAIT\_FOR,%P 2:, 4:, 5:L1\_Pallet\_Eject\_Ack, 6:1, 7:, 9:

WAIT FOR ( (L1\_Pallet\_Eject\_Ack) )

;ENDFOLD

ELSE

IF (ib1 == 1) OR (ib1 == 16) THEN

;FOLD WAIT FOR ( OK\_to\_Pick\_Sheet );%{PE}%R 5.4.33,%MKUKATPBASIS,%CEXT\_WAIT\_FOR,%VEXT\_WAIT\_FOR,%P 2:, 4:, 5:OK\_to\_Pick\_Sheet, 6:1, 7:, 9:

WAIT FOR ( (OK\_to\_Pick\_Sheet) )

;ENDFOLD

pickwasher()

;FOLD WAIT FOR ( L1\_OK\_to\_Place\_Sheet );%{PE}%R 5.4.33,%MKUKATPBASIS,%CEXT\_WAIT\_FOR,%VEXT\_WAIT\_FOR,%P 2:, 4:, 5:L1\_OK\_to\_Place\_Sheet, 6:1, 7:, 9:

WAIT FOR ( (L1\_OK\_to\_Place\_Sheet) )

;ENDFOLD

IF (L1\_OK\_to\_Place\_Sheet) THEN

placewasher1(current\_box\_layer1, Z\_pallet)

Kz\_washer1 = Kz\_washer1 + 1

ELSE

ENDIF

ELSE

;FOLD WAIT FOR ( L1\_OK\_to\_Pick\_Product ) OR ( L2\_OK\_to\_Pick\_Product );%{PE}%R 5.4.33,%MKUKATPBASIS,%CEXT\_WAIT\_FOR,%VEXT\_WAIT\_FOR,%P 2:, 4:, 5:L1\_OK\_to\_Pick\_Product, 6:1, 7:, 9:OR, 10:, 12:, 13:L2\_OK\_to\_Pick\_Product, 14:1, 15:, 17:

WAIT FOR ( (L1\_OK\_to\_Pick\_Product) ) OR ( (L2\_OK\_to\_Pick\_Product) )

;ENDFOLD

IF (L1\_OK\_to\_Pick\_Product) THEN

pickbox1(X\_box)

ELSE

IF (L2\_OK\_to\_Pick\_Product) THEN

pickbox2(X\_box)

ENDIF

ENDIF

;FOLD WAIT FOR ( L1\_OK\_to\_Place\_Product );%{PE}%R 5.4.33,%MKUKATPBASIS,%CEXT\_WAIT\_FOR,%VEXT\_WAIT\_FOR,%P 2:, 4:, 5:L1\_OK\_to\_Place\_Product, 6:1, 7:, 9:

WAIT FOR ( (L1\_OK\_to\_Place\_Product) )

;ENDFOLD

IF ((L1\_OK\_to\_Place\_Product) AND (SA\_L1\_Pallet\_Pr\_in)) THEN

placebox1(current\_box\_layer1, current\_box\_layer\_side1, X\_box, Z\_box, Z\_washer, Kz\_washer1, Z\_pallet)

IF current\_box\_layer\_side1 == 1 THEN

current\_box\_layer\_side1 = 2

ELSE

current\_box\_layer\_side1 = 1

current\_box\_layer1 = current\_box\_layer1 + 1

ENDIF

ENDIF

ENDIF

ENDIF

ENDFOR

FOR ip2 = 1 TO 2 ;cycles for placing 2 pallets at the left side

;FOLD WAIT FOR ( L1\_OK\_to\_Pick\_Pallet ) OR ( L2\_OK\_to\_Pick\_Pallet );%{PE}%R 8.3.22,%MKUKATPBASIS,%CEXT\_WAIT\_FOR,%VEXT\_WAIT\_FOR,%P 2:, 4:, 5:L1\_OK\_to\_Pick\_Pallet, 6:1, 7:, 9:OR, 10:, 12:, 13:L2\_OK\_to\_Pick\_Pallet, 14:1, 15:, 17:

WAIT FOR ( (L1\_OK\_to\_Pick\_Pallet) ) OR ( (L2\_OK\_to\_Pick\_Pallet) )

;ENDFOLD

IF ((L1\_OK\_to\_Pick\_Pallet) AND (SA\_L1\_Pallet\_St\_in)) THEN

flag\_pallet\_pick\_number = 1

pickpallet1(pallet1\_num)

pallet1\_num = pallet1\_num - 1

ELSE

IF ((L2\_OK\_to\_Pick\_Pallet) AND (SA\_L2\_Pallet\_St\_in)) THEN

flag\_pallet\_pick\_number = 2

pickpallet2(pallet2\_num)

pallet2\_num = pallet2\_num - 1

ENDIF

ENDIF

;FOLD WAIT FOR ( L2\_OK\_to\_Place\_Pallet );%{PE}%R 8.3.22,%MKUKATPBASIS,%CEXT\_WAIT\_FOR,%VEXT\_WAIT\_FOR,%P 2:, 4:, 5:L2\_OK\_to\_Place\_Pallet, 6:1, 7:, 9:

WAIT FOR ( (L2\_OK\_to\_Place\_Pallet) )

;ENDFOLD

IF ((L2\_OK\_to\_Place\_Pallet) AND (SA\_L2\_Pallet\_Pr\_in)) THEN

placepallet2(flag\_pallet\_pick\_number, ip2, Z\_pallet)

ENDIF

ENDFOR

FOR ib2 = 1 to target\_layers\_number\_2 ;cycles for placing 10 layers of boxes and one layer for washer at the left side

; check signal from controller to free pallet 1

IF (L2\_Pallet\_Eject\_Req) THEN

IF (ib2 <> target\_layers\_number\_2) THEN

L2\_Pallet\_Eject\_Part = TRUE

ELSE

L2\_Pallet\_Eject\_Full = TRUE

ENDIF

ib2 = target\_layers\_number\_2

;FOLD WAIT Time= 0.5 sec;%{PE}%R 8.3.22,%MKUKATPBASIS,%CWAIT,%VWAIT,%P 2:0.5

WAIT SEC 0.5

;ENDFOLD

;FOLD WAIT FOR ( L2\_Pallet\_Eject\_Ack );%{PE}%R 8.3.22,%MKUKATPBASIS,%CEXT\_WAIT\_FOR,%VEXT\_WAIT\_FOR,%P 2:, 4:, 5:L2\_Pallet\_Eject\_Ack, 6:1, 7:, 9:

WAIT FOR ( (L2\_Pallet\_Eject\_Ack) )

;ENDFOLD

ELSE

IF (ib2 == 1) OR (ib2 == 16) THEN

;FOLD WAIT FOR ( OK\_to\_Pick\_Sheet );%{PE}%R 5.4.33,%MKUKATPBASIS,%CEXT\_WAIT\_FOR,%VEXT\_WAIT\_FOR,%P 2:, 4:, 5:OK\_to\_Pick\_Sheet, 6:1, 7:, 9:

WAIT FOR ( (OK\_to\_Pick\_Sheet) )

;ENDFOLD

pickwasher()

;FOLD WAIT FOR ( L2\_OK\_to\_Place\_Sheet );%{PE}%R 5.4.33,%MKUKATPBASIS,%CEXT\_WAIT\_FOR,%VEXT\_WAIT\_FOR,%P 2:, 4:, 5:L2\_OK\_to\_Place\_Sheet, 6:1, 7:, 9:

WAIT FOR ( (L2\_OK\_to\_Place\_Sheet) )

;ENDFOLD

IF (L2\_OK\_to\_Place\_Sheet) THEN

placewasher2(current\_box\_layer2, Z\_pallet)

Kz\_washer2 = Kz\_washer2 + 1

ENDIF

ENDIF

;ELSE

;FOLD WAIT FOR ( L1\_OK\_to\_Pick\_Product ) OR ( L2\_OK\_to\_Pick\_Product );%{PE}%R 5.4.33,%MKUKATPBASIS,%CEXT\_WAIT\_FOR,%VEXT\_WAIT\_FOR,%P 2:, 4:, 5:L1\_OK\_to\_Pick\_Product, 6:1, 7:, 9:OR, 10:, 12:, 13:L2\_OK\_to\_Pick\_Product, 14:1, 15:, 17:

WAIT FOR ( (L1\_OK\_to\_Pick\_Product) ) OR ( (L2\_OK\_to\_Pick\_Product) )

;ENDFOLD

IF (L1\_OK\_to\_Pick\_Product) THEN

pickbox1(X\_box)

ELSE

IF (L2\_OK\_to\_Pick\_Product) THEN

pickbox2(X\_box)

ENDIF

ENDIF

;FOLD WAIT FOR ( L2\_OK\_to\_Place\_Product );%{PE}%R 5.4.33,%MKUKATPBASIS,%CEXT\_WAIT\_FOR,%VEXT\_WAIT\_FOR,%P 2:, 4:, 5:L2\_OK\_to\_Place\_Product, 6:1, 7:, 9:

WAIT FOR ( (L2\_OK\_to\_Place\_Product) )

;ENDFOLD

IF ((L2\_OK\_to\_Place\_Product) AND (SA\_L2\_Pallet\_Pr\_in )) THEN

placebox2(current\_box\_layer2, current\_box\_layer\_side2, X\_box, Z\_box, Z\_washer, Kz\_washer2, Z\_pallet)

IF current\_box\_layer\_side2 == 1 THEN

current\_box\_layer\_side2 = 2

ELSE

current\_box\_layer\_side2 = 1

current\_box\_layer2 = current\_box\_layer2 + 1

ENDIF

ENDIF

ENDIF

ENDFOR

IF (pallet1\_num == 0) THEN

pallet1\_num = pallet1\_num\_init

ENDIF

IF (pallet2\_num == 0) THEN

pallet2\_num = pallet2\_num\_init

ENDIF

ENDLOOP

;FOLD PTP HOME Vel= 100 % DEFAULT;%{PE}%MKUKATPBASIS,%CMOVE,%VPTP,%P 1:PTP, 2:HOME, 3:, 5:100, 7:DEFAULT

$BWDSTART = FALSE

PDAT\_ACT=PDEFAULT

FDAT\_ACT=FHOME

BAS (#PTP\_PARAMS,100 )

$H\_POS=XHOME

PTP XHOME

;ENDFOLD

END