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\* Hardware version: CoreV4D2, BASE-BOARDV61, IO-BOARDV6.2;

\* System version: 180521 \_\_lFQY\_Core.hex

\* Created: 2017.05.04

\* Modified time: 2011.06.26

\* Author:

\* Update content: Cancel G04 command, cancel G24 command,

Increase G00 command, immediate value of absolute value, variable; incremental immediate value, variable

Add 2 formats (angle and radians) Trigonometric operation instructions SIN, COS, TAN, ASIN, ASOS, ATAN

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1. Serial port instruction

1.1 serial port mode

Serial port parameters: baud rate 115200; data bit 8; stop bit 1.

Instruction format:

The control commands are hexadecimal 0X10 (idle mode), 0X11 (file mode), 0X12 (zero return mode), 0X13 (run mode), 0X14 (debug mode), 0X15 (reset mode); 0X05 is the interrogation mode;

The running instructions all start with 'GXX' and end with a carriage return;

The teaching instruction ends with a carriage return and a new line;

In the system version of 180521 and above, when \_flagSoftRst=1 is set in the parameter file, the serial port 1 can send 0X18 to output the output port o14 in any case. According to this function, the e14 relay control NRST restart (emergency stop).

0X05: == query mode ==

The control card is in any working mode (except file mode), and the serial port sends 0X05 to ask the current working mode of the control card. The return value is 0X10, 0X12, 0X13, 0X14, 0X15.

0X10: == enter idle mode ==

When the control card is in idle mode (0X10): it is in idle mode.

In file mode, 0X10 is valid after the file operation instruction is run.

In the zero return mode, the robot stops moving (send 0X30) and sends 0X10 to take effect.

In the running mode, the robot stops moving (send 0X30) and sends 0X10 to take effect.

In reset mode, the reset completes the brake and exits to idle mode. It is in idle mode when it is turned on.

0X11: == enter file mode ==

Download the running file and select “Send File” after sending 0X11. Among them, the first act in the file

"wr=ST" is the run file;

"WR=INI" is a parameter file;

"WR=oq" is a zero return file;

"WR=T\_0" is the default run file, equivalent to "wr=ST";

"WR=T\_1" is the run 1 file;

"WR=T\_2" is the run 2 file;

...

"WR=T\_120" is the run 120 file;

The second behavior file name; the third behavior file length, the length is the file size except the first three lines.

After reading the running file and sending 0X11, send "WR=R,##" ("##" is the length of the read content) to receive the running file.

After reading the parameter file, send "WR=P,##" ("##" is the length of the read content) after sending 0X11 to receive the parameter file.

After reading the parameter file, after sending 0X11, send "WR=Q,##" ("##" is the length of the read content) to receive the zero return file.

The read parameter file can receive the run 0 file after sending 0X11 and sending "WR=H\_0,##" ("##" is the read content length).

After reading the parameter file, send "WR=H\_1,##" ("##" is the length of the read content) after sending 0X11 to receive the run 1 file.

...

After reading the parameter file, after sending 0X11, send "WR=H\_120,##" ("##" is the read content length) to receive the run 120 file.

0X12: == Motor zero return mode ==

After entering the zero return mode, the system automatically runs the file content and the instructions sent by the serial port in real time. Pause is 0X30, continue to 0X12, exit is 0X10

Instructions can be obtained from the run file and can also be obtained from the serial port.

Automatically exit idle mode after running the contents of the file

0X13: == enter running mode ==

After entering the running mode, the system automatically runs the file content and the instructions sent by the serial port in real time. The pause is 0X30, the continuation is 0X13, and the exit is 0X10.

Instructions can be obtained from the run file and can also be obtained from the serial port.

After running the contents of the file, it automatically runs from the beginning.

0X14: == enter debug mode ==

Send 0X05 as the inquiry mode.

Send 0X10 as the exit mode.

Send "0" to stop and send the angle of each axis of the machine.

Send "SVON=1" for servo enable.

Send "SVON=0" to disable the servo.

Send "SVBM=1" to the servo without holding the brake.

Send "SVBM=0" as the servo brake.

Send "CLR=ST\_PUL" to clear the position of the control card.

Send "CLR=SV\_ALM" to clear the drive alarm.

Send "J#+" to the #axis angle plus motion (#=1, 2, 3, 4, 5, 6).

Send "J#-" to the ##axis angle minus motion.

Send "J#0" to stop at ##axis angle.

Send "J#<" to repeat the motion for the #axis angle (@0°~ -90°).

Send "J#>" to repeat the motion for the #axis angle (@ 0°~ 90°).

Send "P VE=####" to change the running speed to #### pulses/sec.

Send "P AC=####" to change the acceleration to #### pulses/square sec.

Send "P DE=####" to change the deceleration to #### pulses/square sec.

Send "G00 J#=####,...." to get the robot joints to the appropriate angle.

Send "G07 \*\*=####" to specify parameters for changing the robot.

TX+: Cartesian coordinates X+;

TX-: Cartesian coordinates X-;

TY+: Cartesian coordinates Y+;

TY-: Cartesian coordinates Y-;

TZ+: Cartesian coordinates Z+;

TZ-: Cartesian coordinates Z-;

TA+: Cartesian coordinates A+;

TA-: Cartesian coordinates A-;

TB+: Cartesian coordinates B+;

TB-: Cartesian coordinates B-;

TC+: Cartesian coordinates C+;

TC-: Cartesian coordinates C-;

P CYCP1=800000: The J1 axis is subdivided into 800,000 pulses per week

....

P J1=24000 Assignment to J1

....

P=VE Query VE value There are VE, AC, DE, CYCP1,...,J1,...,H0,D1,H2...

0X15: == enter reset mode ==

Return the machine to zero.

2. Button control instructions

When starting up, press the "Start" button to run the robot to run mode.

In the operating mode, at runtime, press the "Stop" button to pause the machine.

In the operating mode, when stopped, press the "Start" button and the machine continues to run.

In the operation mode, when stopping, press the "Stop" button and then press the "Start" button, the machine resets and exits the idle mode.

Instruction description:

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G0n=GGN such as G06 O=P1.1 is equivalent to GG6 O=P1.1

Point-to-point command G00, G20

G00 J1=0 J2=0 J3=-90 J4=0 J5=-90 J6=0 //with acceleration and deceleration absolute joint position command

G00 J1=VXX J2=0 J3=VXX J4=VXX J5=-90 J6=0 //With acceleration and deceleration Absolute joint position command

G00 ... J2'4 J3'VXX ... //with acceleration and deceleration relative joint position command

G00 ... J2'4 J3'VXX J4=VXX J5=-90... //J2 is

G20 X=300 Y=100 Z=500 A=0 B=180 C=0 D=0 //with acceleration and deceleration

G20 X=300 Y=VXX Z=VXX A=VXX B=180 C=VXX D=0 //with acceleration and deceleration

G30 EQ01 J1=UXXXX, J2=UXXXX, J3=UXXXX Read memory contents G30 EQ01 J1=U30100 J2=U30120 J3=U30140 J4=U30160

G30 EQ02 U3060=XX.XX Write memory contents G30 EQ02 U30500=10

G30 EQ03 ASK=UXXXX Query memory contents

G30 EQ04 Vxx=UXXXXXX

G30 EQ05 UXXXXXX=Vxx

G40 X=300 Y=100 Z=500 A=0 B=180 C=0 D=0 //No acceleration/deceleration

Linear command G01 G21

G01 J1=0 J2=0 J3=-90 J4=0 J5=-90 J6=0

G21 X=300 Y=100 Z=500 A=0 B=180 C=0 D=0

G21 X=VXX Y=VXX Z=500 A=0 B=VXX C=0 D=0

G41 X=300 Y=100 Z=500 A=0 B=180 C=0 D=0 //with acceleration and deceleration

G41 X=300 Y=VXX Z=VXX A=0 B=180 C=0 D=0 //with acceleration and deceleration

Arc command G02 G03 G04 G22 G23 G06 DEGREE=ARC (or degree)

When DEGREE=ARC is going to be a three-point arc

Current point: G21 X=200 Y=0 Z=200 A=-180 B=150 C=0 D=0

Second point: G22 X=300 Y=100 Z=200 A=-180 B=150 C=90 D=0

Third point: G23 X=400 Y=0 Z=200 A=-180 B=150 C=300 D=0

Arc running: G06 DEGREE=300

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G06 directive

G06 T=500 delay 500 milliseconds

G06 t=VXX Delay VXX content milliseconds (for example: G08 MOV V400=#2000 G06 t=V400 is a delay of 2000 milliseconds)

G06 I=P1.1 Wait for P1 to be high

G06 I=P2.0 Wait for P2 to be low

G06 O=P1.1 makes output port P1 high (different port from input port)

G06 O=P2.0 makes the output port P2 low

G06 SCAN=I Read input port value, stored in V144-V150 unit

G06 SCAN=O Read output port value, stored in V160-V166 unit

G06 SCAN=RTC Read system clock value and store it in V176-V179 unit

G06 DEGREE=ARC robot takes a three-point arc

G06 DEGREE=35.2 The robot walks 35.2 degrees

G06 REPOS=J# J# Axis looks for HOME# sensor from angle increase direction (return to low level)

G06 REPOS=-J# J# axis finds HOME# sensor from angle reduction direction (return to low level)

G06 REPOS=J1 J1 axis finds HOME0 sensor from angle increase direction (return to low level)

G06 REPOS=-J1 J1 axis finds HOME0 sensor from angle reduction direction (return to low level)

G06 REPOS=JH# J# Axis finds HOME# sensor from angle increase direction (return to high level)

G06 REPOS=-JH# J# axis finds HOME# sensor from angle reduction direction (return to high level)

G06 REPOS=JH1 J1 axis finds HOME0 sensor from angle increase direction (return to high level)

G06 REPOS=-JH1 J1 axis finds HOME0 sensor from angle decrease direction (return to high level)

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G07 command

G07 VE=250000 speed is 250,000 pulses per second

G07 AC=250000 Acceleration is 250,000 pulses per second squared

G07 DE=250000 Deceleration is 250,000 pulses per second squared

G07 VPP=250000 Maximum speed 250,000 pulses per second

G07 VP=20 Speed ​​VE is 20% of the highest speed, VE=VPP\*VP\*0.01

G07 vp=VXX Speed ​​VE is the content of the highest speed VXX, VE=VPP\*VXX unit value \*0.01

G07 \_h0=xx height change

G07 RCM=1 print run command, 0 does not print run command

G07 GCM=1 is output at right angle coordinates when teaching, 0 is joint coordinate output

G07 MARKPOS\_HERE X1=0 Y1=0 X2=100 Y2=100 Template MARK point

G07 MARKPOS X1=10 Y1=10 X2=110 Y2=110 Match MARK point

G07 UNIT=1.0 Interpolation accuracy (in mm)

G07 P J#=XXXX calibration J# axis