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# Moxa x86 Linux SDK Wizard

## Introduction

The Moxa x86 Linux SDK enables the easy deployment on the Moxa x86 IPC platform. The SDK contains components for peripheral drivers, peripheral control tools and configuration files. It also provides deployment features, such as build & installation log, dry-run, and selftest on target model.

## SDK Structure

The x86 Linux SDK zip file consists of the following files:

<wizard>.tgz - the tarball file of x86 Linux SDK Install Wizard  
README.docx - this file in docx format  
sources\_list - the list of source of x86 Linux SDK Install Wizard  
build\_info - x86 Linux SDK build information

## Support Models and Linux Distributions

|  |  |  |  |
| --- | --- | --- | --- |
| **Model Name** | **Debian 11** | **Ubuntu 22.04** | **RHEL 9** |
| RKP-A110 | V | V | V |
| RKP-C110 | V | V | V |
| BXP-A100 | V | V | V |
| BXP-C100 | V | V | V |
| DRP-A100 | V | V | V |
| DRP-C100 | V | V | V |
| MPC-3000 | V | V | V |

## Build from x86 Linux Install Wizard

Moxa offers a release of the x86 Linux Install Wizard tarball file. The release is different in some functionality as documented **CHANGELOG** in the repository.

### Extract the released tarball file

**Warning**: Please extract the tarball file under Linux OS environment

tar xvf Moxa\_x86\_Linux\_Install\_Wizard\_<ver>\_Build\_<build\_date>.tgz  
cd Moxa\_x86\_Linux\_Install\_Wizard\_<ver>\_Build\_<build\_date>

### x86 Linux Install Wizard Structure

* The x86 Linux Install Wizard consists of the following directories and files:

product.d/ - congfiguration files for products  
scripts/ - install wizard generic programs  
src/ - source code for the drivers and tools  
install.sh - entry program for build and install the SDK  
README.md - this file: introduction and build instructions  
CHANGELOG - change log and difference to the SDK release  
LICENSE - MOXA license statement file  
version - current version of x86 Linux Install Wizard

### Prerequisites

* A system running Linux (Debian, Ubuntu, RedHat)
* Access to the terminal/command line
* A user account with **sudo/root** privileges
* Please configure your network settings before installation procedure

### Display help page

Show a short usage summary

* Command

./install.sh --help

* Result

███╗ ███╗ ██████╗ ██╗ ██╗ █████╗  
 ████╗ ████║██╔═══██╗╚██╗██╔╝██╔══██╗  
 ██╔████╔██║██║ ██║ ╚███╔╝ ██║ ██║  
 ██║╚██╔╝██║██║ ██║ ██╔██╗ ██║ ██║  
 ██║ ╚═╝ ██║╚██████╔╝██╔╝ ██╗██║ ██║  
 ╚═╝ ╚═╝ ╚═════╝ ╚═╝ ╚═╝╚═╝ ╚═╝  
 ------------------------------------  
 X86 INSTALL WIZARD  
  
Usage: install.sh [option]  
  
Options:  
 -h, --help Display this help page  
 -y, --yes Automatically answer yes  
 -v, --version Display the version information  
 -s, --selftest Run the self test cases  
 --dry-run List available driver and tool only  
 --uninstall Uninstall driver and tool  
 --force Install driver and tool even if the  
 version is the same or older (default is  
 to install newer version)  
  
Without passing any option, it would run the installation directly.

### Display x86 Install Wizard version

* Command

./install.sh --version

* Expected result

1.0.0

### How to Use the --yes Option

The --yes (alternatively, -y) option automatically answers yes to any prompts

It can use with others options as below - Assume “yes” as answer to all prompts during installation process

./install.sh --yes

* Assume “yes” as answer to all prompts during uninstallation process

./install.sh --yes --uninstall

### How to Use the --dry-run Option

The --dry-run option simulates what would install, but doesn’t actually change anything on your system

* Command

./install.sh --dry-run

* Expected result (RKP-A110)
  + Name: driver or tool source name
  + Version: driver or tool source version which is available to install
  + Tag: driver or tool source git tag name
* ----------------------------------------------------------------------  
   Product Name: RKPA110  
  ----------------------------------------------------------------------  
   Name Version Tag  
  ======================================================================  
   moxa-it87-gpio-driver 5.2+1.5.0-1 master  
   moxa-it87-wdt-driver 5.2+1.5.0-1 5.2-master  
   moxa-it87-serial-driver 1.4.1+u2 master  
   moxa-mxuport-driver 5.1.1\_build\_23080316 5.x-5.1.1\_build\_23080316-develop  
   moxa-x86-control-tools 1.8.1 master  
  ----------------------------------------------------------------------

### Build and Install

Default is to install newer version. If you want to install the same or older, please use the --force option

* Command

./install.sh

Note: Please run with **sudo/root** privileges

* Expected result (RKP-A110)

[info] Product Name: RKPA110  
[info] OS Name: Ubuntu  
[info] OS Version: 22.04  
[info] Kernel Info: Linux moxa 5.19.0-32-generic #33~22.04.1-Ubuntu SMP PREEMPT\_DYNAMIC Mon Jan 30 17:03:34 UTC 2 x86\_64 x86\_64 x86\_64 GNU/Linux  
Do you want to continue? [Y/n]y  
[info] >>> Execute hook script "install-dev-tools.sh".  
[info] <<< Execute hook script "install-dev-tools.sh" done.  
[info] >>> Execute hook script "build-and-install-source.sh".  
[info] === Run pre-install  
[info] === Install driver  
Do you want to install moxa-it87-gpio-driver (5.2+1.5.0-1)? [Y/n]y  
[info] Installing moxa-it87-gpio-driver (5.2+1.5.0-1)  
Do you want to install moxa-it87-wdt-driver (5.2+1.5.0-1)? [Y/n]y  
[info] Installing moxa-it87-wdt-driver (5.2+1.5.0-1)  
...  
... (skip)  
...  
[info] Done. Please reboot machine for installation to take effect.  
Do you want to reboot now? [Y/n]

And finally, you’ll see a prompt asking if you want to reboot the system

Do you want to reboot now? [Y/n]

Enter y, Y, or yes to reboot the system, or n, N, or no to exit out of install process

### Check the status of deployment

After build and install, you can run --selftest option to check the status.

* Command

./install.sh --selftest

* Expected result (RKP-A110)
  + Name: Driver or tool name
  + Installed: Installation status of the driver or tool
    - Yes: The driver/tool is installed
    - No: The driver/tool is not installed
  + Status: Shows the readiness of the installed driver or tool
    - Loaded: The driver is loaded
    - Active: The tool or service is active
  + Version: Version: The version of the driver or tool

[info] Product Name: RKPA110  
[info] OS Name: Ubuntu  
[info] OS Version: 22.04  
[info] Kernel Info: Linux moxa 5.19.0-32-generic #33~22.04.1-Ubuntu SMP PREEMPT\_DYNAMIC Mon Jan 30 17:03:34 UTC 2 x86\_64 x86\_64 x86\_64 GNU/Linux  
[info] >>> Execute hook script "self-test.sh".  
[info] ---------------------------------------------------------------------------  
[info] Name Installed Status Version  
[info] ===========================================================================  
[info] moxa-it87-gpio-driver 5.2+1.5.0-1  
[info] - gpio\_it87 Yes Loaded  
[info] moxa-it87-wdt-driver 5.2+1.5.0-1  
[info] - it87\_wdt Yes Loaded  
[info] - watchdog service Yes Active  
[info] moxa-it87-serial-driver 1.4.1+u2  
[info] - it87\_serial Yes Loaded  
[info] moxa-mxuport-driver 5.1.1\_build\_23080316  
[info] - mxuport Yes Loaded  
[info] moxa-x86-control-tools 1.8.1  
[info] - mx-uart-ctl Yes 6 ports  
[info] - mx-dio-ctl Yes 8 DI / 8 DO  
[info] ---------------------------------------------------------------------------  
[info] <<< Execute hook script "self-test.sh" done.

### Uninstall

Uninstall is identical to install except that driver and tool are removed instead of installed

* Command

./install.sh --uninstall

Note: Please run with **sudo/root** privileges

* Expected result (RKP-A110)

[info] Product Name: RKPA110  
[info] OS Name: Ubuntu  
[info] OS Version: 22.04  
[info] Kernel Info: Linux moxa 5.19.0-32-generic #33~22.04.1-Ubuntu SMP PREEMPT\_DYNAMIC Mon Jan 30 17:03:34 UTC 2 x86\_64 x86\_64 x86\_64 GNU/Linux  
Do you want to continue? [Y/n]y  
[info] >>> Execute hook script "uninstall.sh".  
[info] === Uninstall driver  
Do you want to uninstall moxa-it87-gpio-driver (5.2+1.5.0-1)? [Y/n]y  
[info] Uninstall moxa-it87-gpio-driver (5.2+1.5.0-1)  
Do you want to uninstall moxa-it87-wdt-driver (5.2+1.5.0-1)? [Y/n]y  
[info] Uninstall moxa-it87-wdt-driver (5.2+1.5.0-1)  
[info] Remove Watchdog Service  
Do you want to uninstall moxa-it87-serial-driver (1.4.1+u2)? [Y/n]y  
[info] Uninstall moxa-it87-serial-driver (1.4.1+u2)  
...  
... (skip)  
...  
[info] <<< Execute hook script "uninstall.sh" done.  
[info] Done. Please reboot machine for uninstallation to take effect.  
Do you want to reboot now? [Y/n]

And finally, you’ll see a prompt asking if you want to reboot the system

Do you want to reboot now? [Y/n]

Enter y, Y, or yes to reboot the system, or n, N, or no to exit out of uninstall process

### Log file

Finally, if user wants to see the log of build and install stage, the log file is located on the same build folder **install.log**

* Command

cat install.log

## Peripheral Control Tool

### Moxa x86 Control Tools

### [UART] Moxa Serial Port Control

The purpose of Moxa serial port mode control tool **mx-uart-ctl** is for getting and setting serial UART ports mode.

* Available models
  + BXP-A100/BXP-C100
  + RKP-A110/RKP-C110
  + DRP-A100/DRP-C100
* Usage of **mx-uart-ctl**

Usage:  
 mx-uart-ctl -p <port\_number> [-m <uart\_mode>]  
  
OPTIONS:  
 -p <port\_number>  
 Set target port.  
 -m <uart\_mode>  
 Set target port to uart\_mode  
 0 --> set to RS-232 mode  
 1 --> set to RS-485-2W mode  
 2 --> set to RS-422 mode  
 3 --> set to RS-485-4W mode  
  
Example:  
 Get mode from port 0  
 # mx-uart-ctl -p 0  
  
 Set port 1 to mode RS232  
 # mx-uart-ctl -p 1 -m 0

### [DIO] Moxa Digital IO Port Control

Moxa DIO port control tool **mx-dio-ctl** is for getting DI/DO and setting DO ports status (low/high).

* Available models
  + BXP-A100/BXP-C100
  + RKP-A110/RKP-C110
* Usage of **mx-dio-ctl**

Usage:  
 mx-dio-ctl <-i|-o <#port number> [-s <#state>]>  
  
OPTIONS:  
 -i <#DIN port number>  
 -o <#DOUT port number>  
 -s <#state>  
 Set state for target DOUT port  
 0 --> LOW  
 1 --> HIGH  
  
Example:  
 Get value from DIN port 0  
 # mx-dio-ctl -i 0  
 Get value from DOUT port 0  
 # mx-dio-ctl -o 0  
  
 Set DOUT port 0 value to LOW  
 # mx-dio-ctl -o 0 -s 0  
 Set DOUT port 0 value to HIGH  
 # mx-dio-ctl -o 0 -s 1

## Change Log

* v1.3 - 2023-10-27
  1. Update content of docs from writer’s suggestion
* v1.2 - 2023-10-05
  1. Compatible SDK Version **1.0**
  2. Show number of DI/DO in selftest result
* v1.1 - 2023-09-13
  1. Compatible SDK Version **1.3.0**
  2. Add --force option description
  3. Revise prerequisites chapter
* v1.0 - 2023-08-30
  1. Compatible SDK Version **1.2.0**
  2. Initial Content