

AX6800x Product Introduction

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Revision History

Revision	Date	Description
0.10	2014/11/03	Preliminary release
1.00	2015/01/21	Updated Figure 15 and Figure 16
1.01	2015/03/04	Updated some descriptions in Section 3 and Section 5

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1. Introduction

This document provides an overview of AX6800x family and AX6800x reference design solutions.

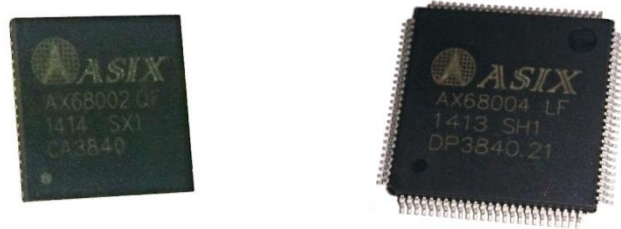


Figure 1. AX6800x Family

AX6800x, Single Chip Micro-controller with USB Host and Device controller, is a System-on-Chip (SoC) solution which offers high performance CPU architecture with on-chip 128KB Flash memory as Program Memory, on-chip 32KB Data Memory for CPU, built in one Root Hub and 2/4 ports Host Controller compliant with USB2.0 Full/Low Speed Standard, 2/4 ports Device Controller compliant with USB2.0 Full Speed Standard, and rich peripheral interfaces for wide varieties of application which need bridge to the USB interface.

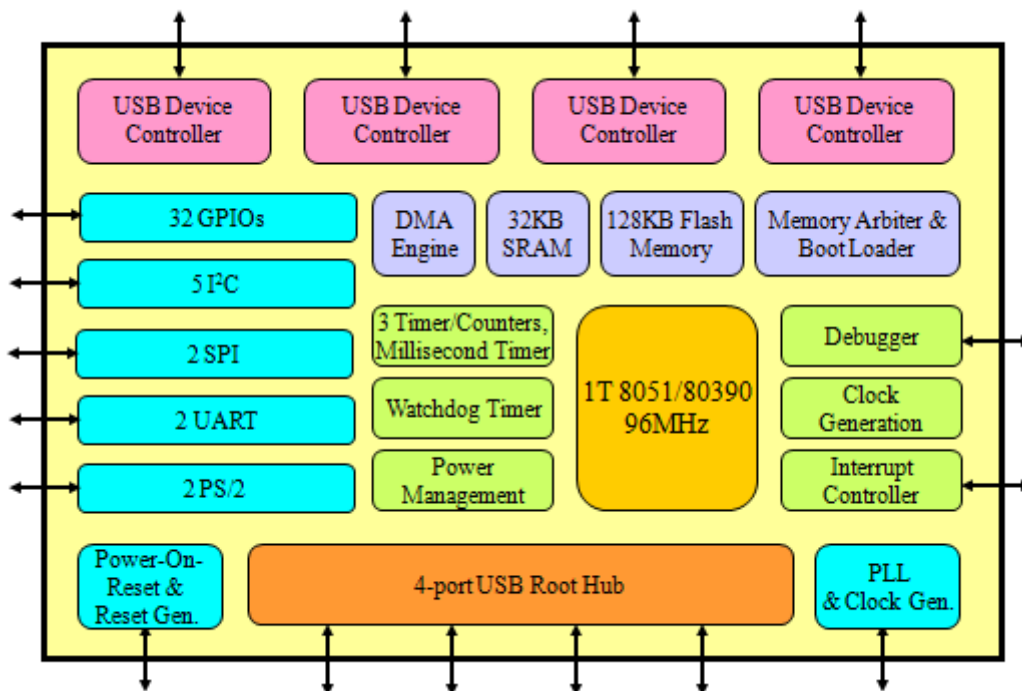


Figure 2. AX6800x Block Diagram

2. Selection Guide

AX6800x family currently consists of 2 variations targeted for different application requirements, as listed below.

Part Number	Embedded Flash (Bytes)	Embedded Data RAM (Bytes)	USB 1.1 Upstream	USB 1.1 Downstream	PS/2	DDC Emulation	Watchdog Timer
AX68002	128K	32K	2	2	-	▼	1
AX68004	128K	32K	4	4	2	▼	1

Part Number	UART	I ² C Master	I ² C Slave	SPI	GPIOs	Package	Temperature Range(°C)
AX68002	2	1	2	1	16	QFN-64	0 ~ +70
AX68004	2	1	4	2	32	LQFP-100	0 ~ +70

Figure 3. AX6800x Family Selection Guide

3. Ordering Information

The following is the ordering information of AX6800x family chips and AX6800x development boards. Please contact ASIX's Sales (sales@asix.com.tw) for details.

Part Number	Description
AX68002 QF	64-pin QFN Lead Free package, commercial temperature range: 0 to 70°C.
AX68004 LF	100-pin LQFP lead Free package, commercial temperature range: 0 to 70°C.

AX6800x Development Boards	Description
AXM68002-DVB-KVM2-1	This is a generic 2-port KVM Switch Development Board for AX68002.
AXM68004-DVB-KVM4-1	This is a generic 4-port KVM Switch Development Board for AX68004.

4. Target Applications

AX6800x provides cost effective solution to enable simple, easy, and low cost integration capability for KVM applications. It could also provide highly programmable flexibility and compatibility.

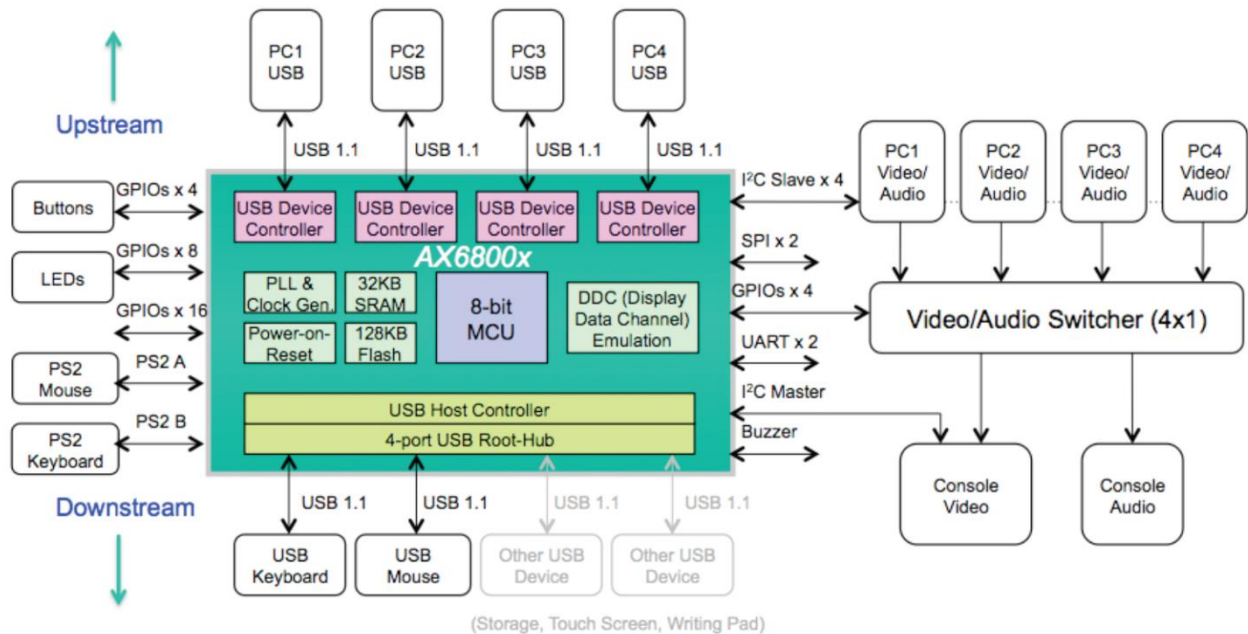


Figure 4. AX6800x Target Applications

- **SOHO KVM Switch:**

- 2-port Cable KVM Switch
- 2/4-port Desktop KVM Switch
 - Basic USB KVM Switch
 - Basic PS/2 KVM Switch
 - USB KVM Switch with Audio and USB Hub
- PC over LAN(Ethernet/Wi-Fi)
- PC over HDBaseT

- **Enterprise KVM Switch:**

- 8/16-port KVM Switch
- VGA KVM Extender
- Cat 5 KVM Switch

The following are some typical AX6800x target applications and examples.

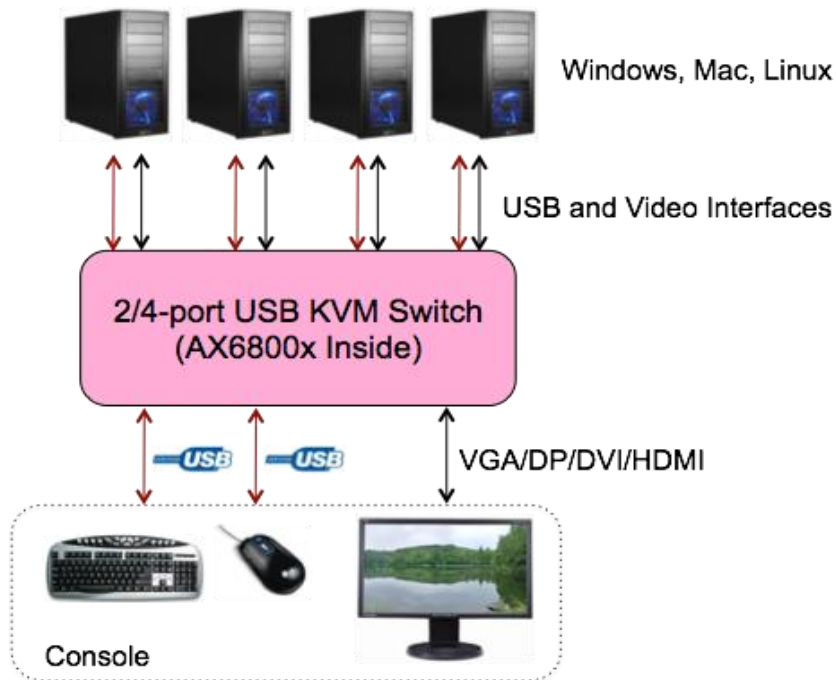


Figure 5. SOHO Desktop KVM Switch Basic USB KVM Switch

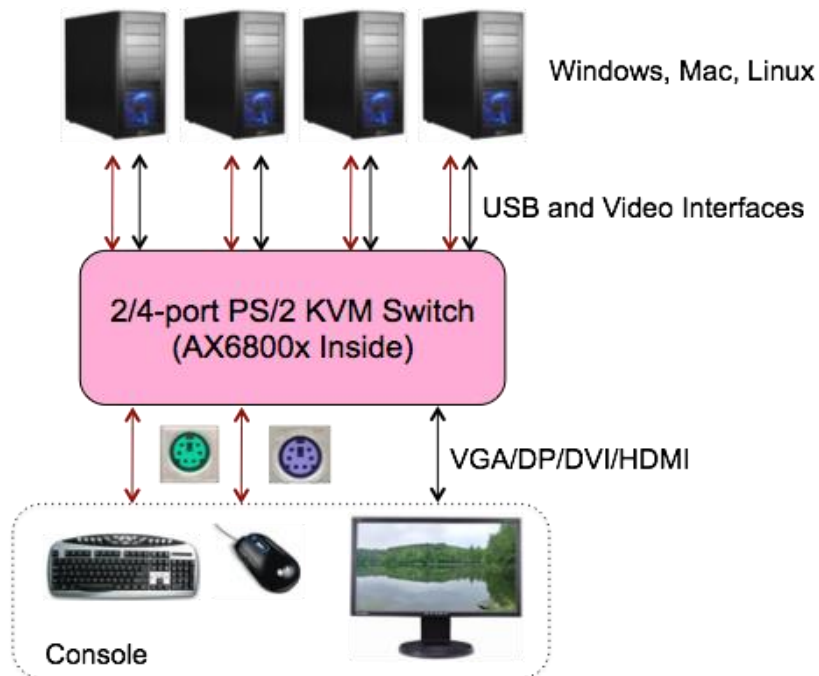


Figure 6. SOHO Desktop KVM Switch Basic PS/2 KVM Switch

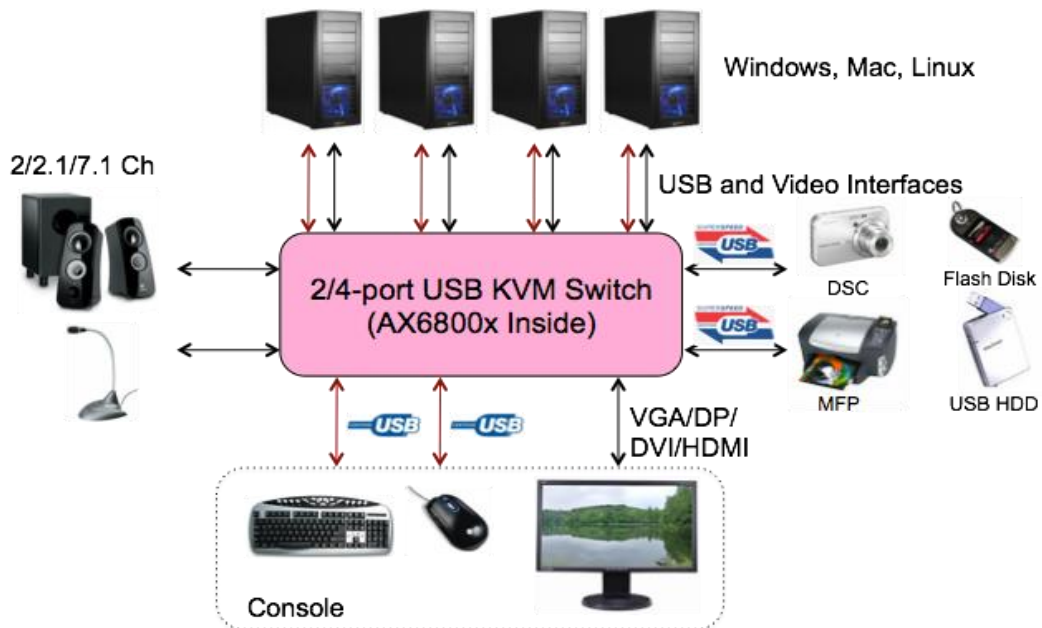


Figure 7. SOHO Desktop KVM Switch USB KVM Switch with Audio and USB Hub

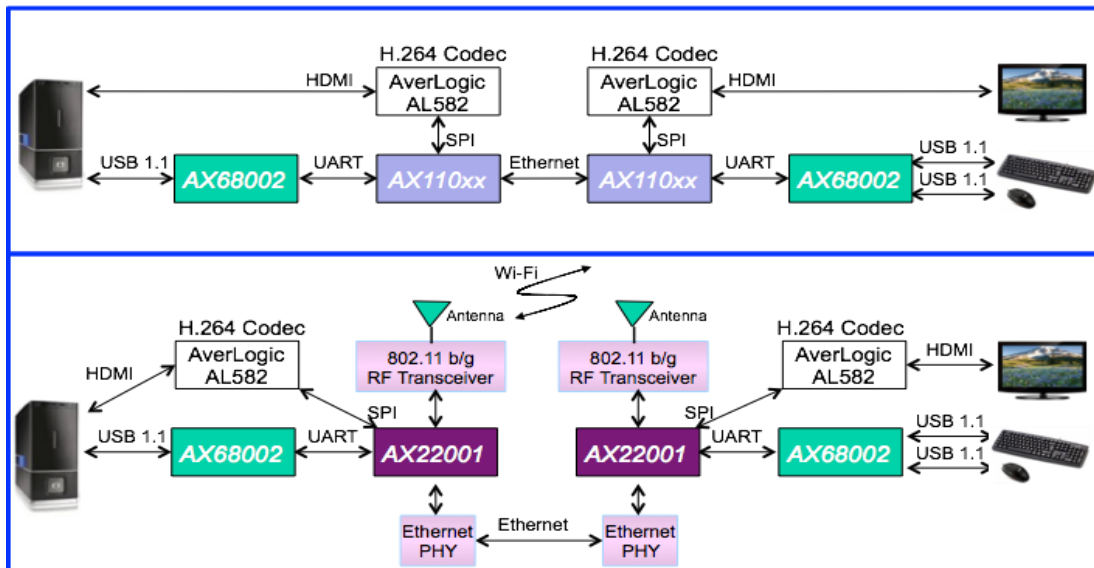


Figure 8. PC over LAN (Ethernet/WiFi)

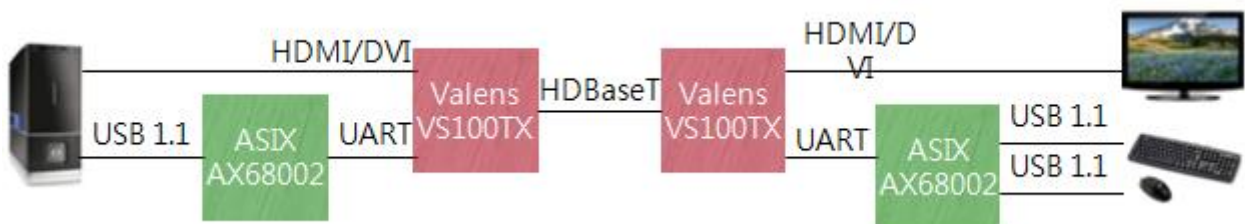


Figure 9. PC over HDBaseT

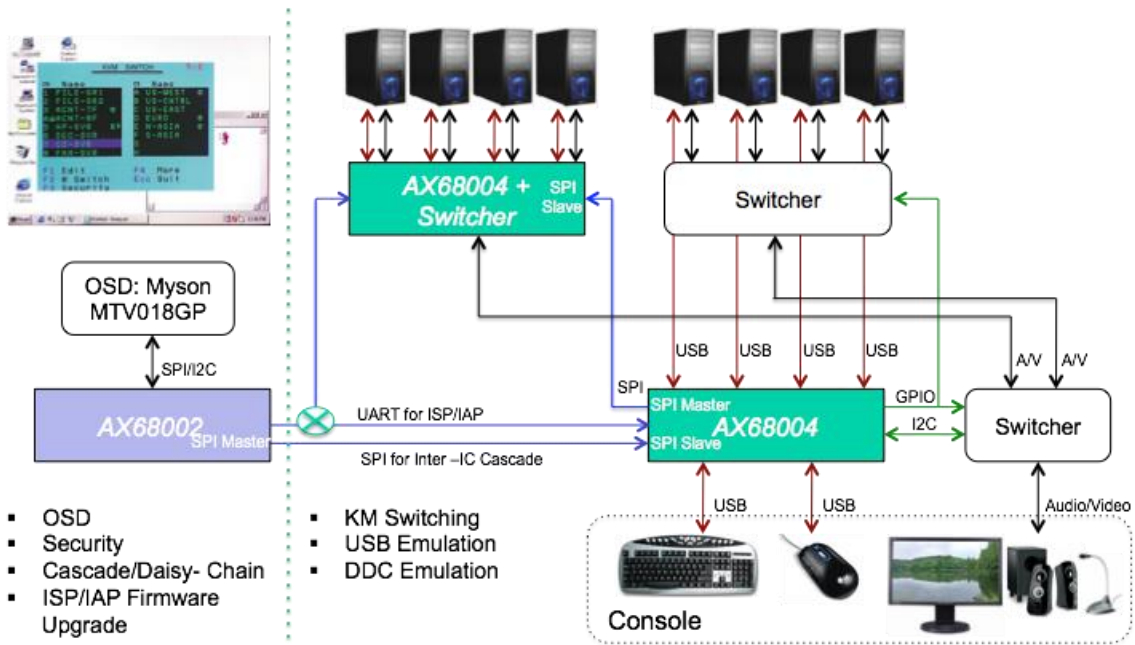


Figure 10. 8-Port Enterprise USB KVM Switch

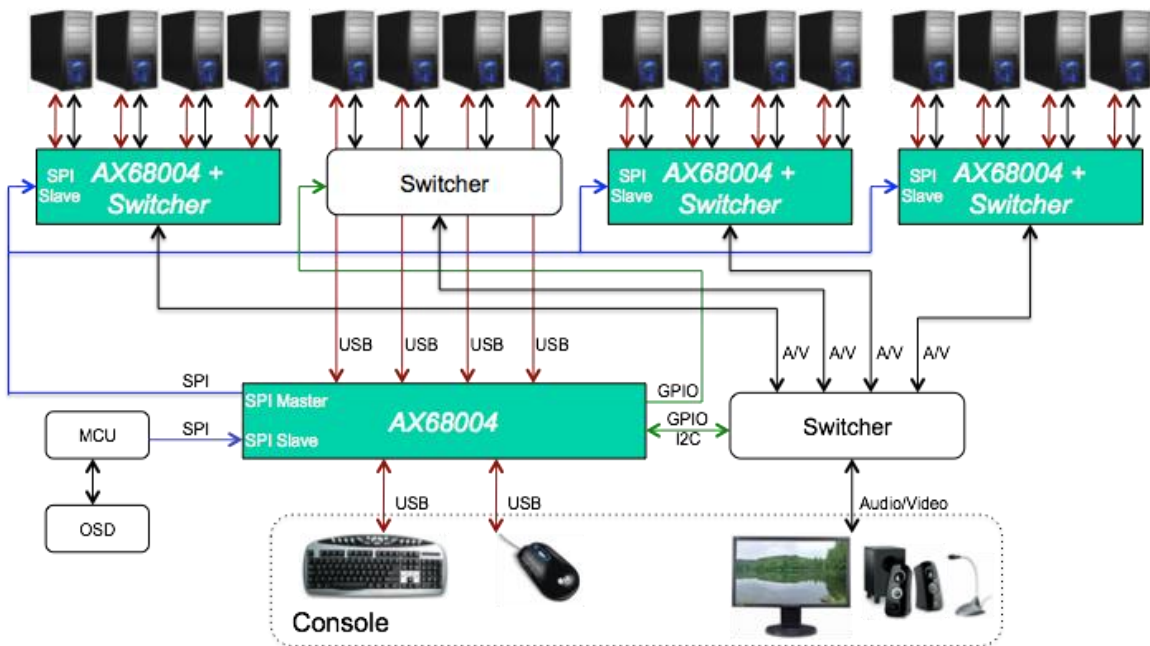


Figure 11. 16-Port Enterprise USB KVM Switch

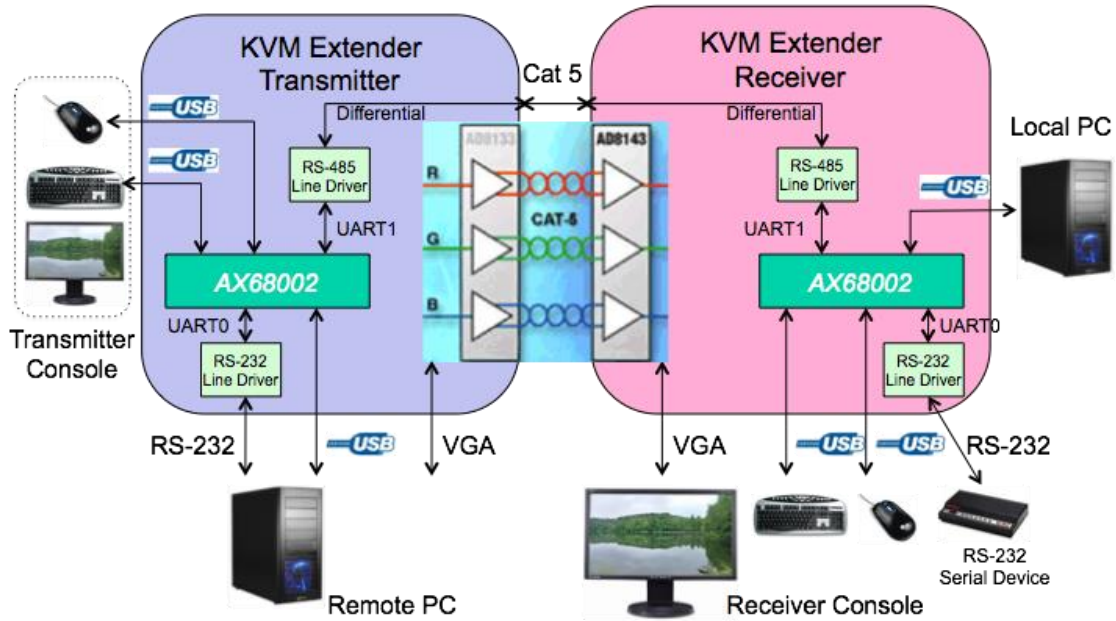


Figure 12. VGA KVM Extender

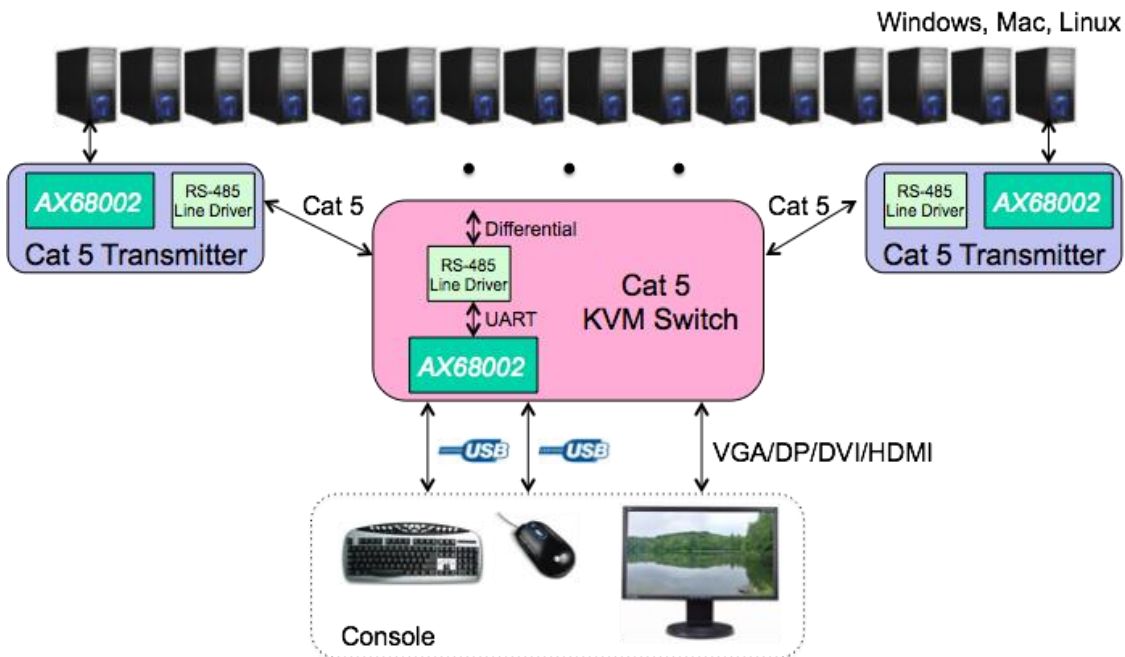


Figure 13. 16-Port Cat 5 KVM Switch

5. AX6800x Reference Design Boards

Currently, ASIX provides AX6800x reference design applications such as **AX6800x 2/4-Port Reference Design** for customer evaluation purpose. The reference designs allow customers to quickly verify the AX6800x reference design related software and hardware components. ASIX will provide more reference designs for AX6800x family later. For most up-to-date information, please contact ASIX Sales staffs at sales@asix.com.tw.

The following photo is the AXM68002-DVB-KVM2-1 2-port KVM Switch Development Board.

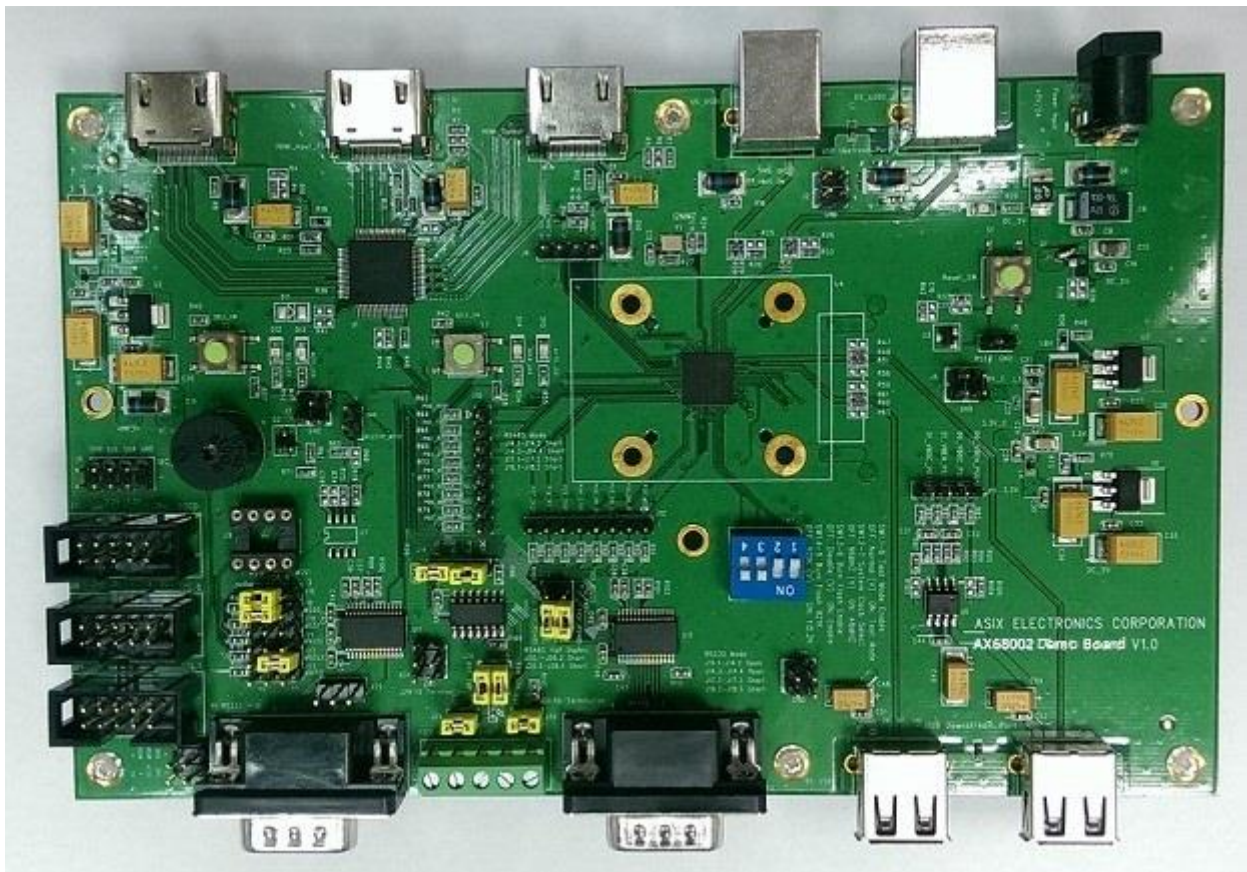


Figure 14. AXM68002-DVB-KVM2-1 2-port KVM Switch Development Board

The following photo is the AXM68004-DVB-KVM4-1 4-port KVM Switch Evaluation Board.

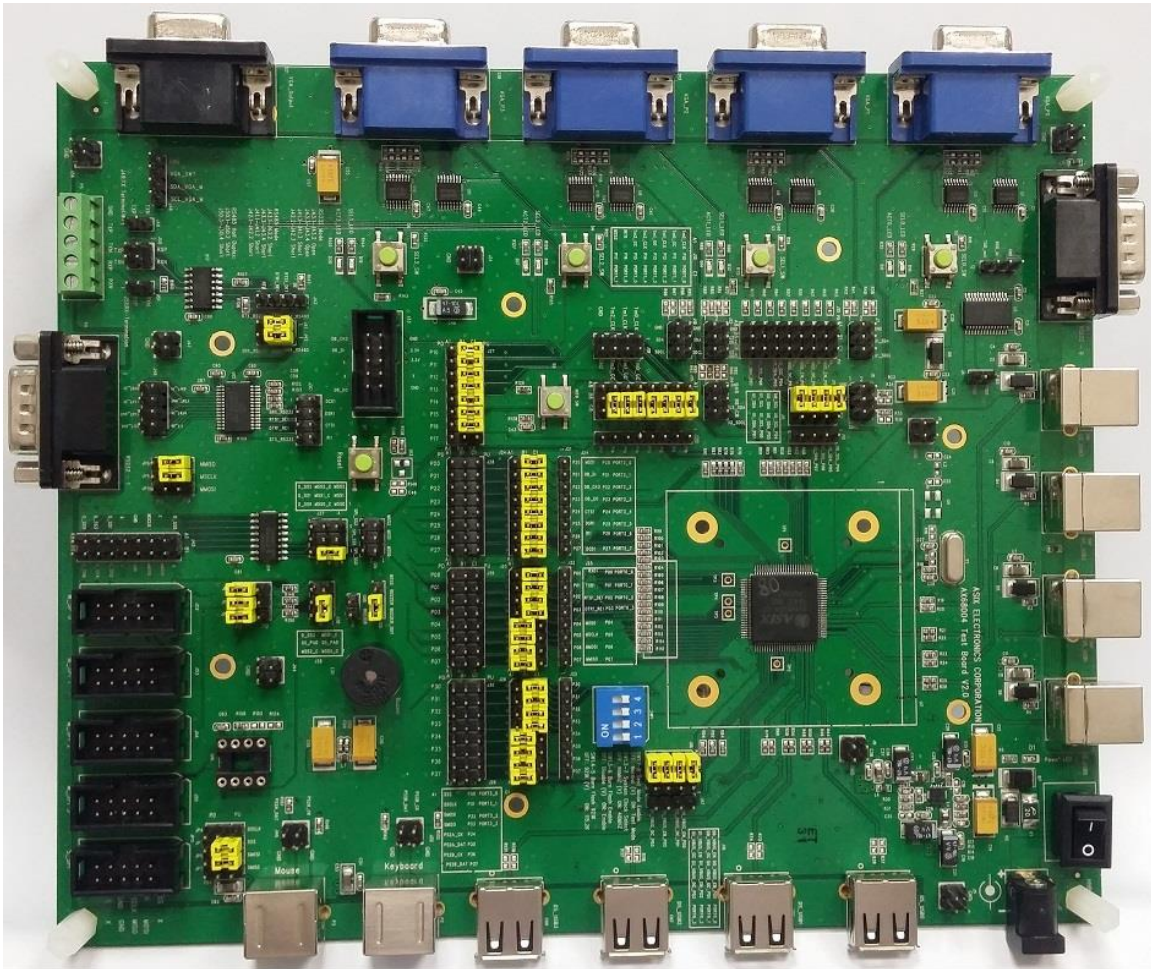


Figure 15. AXM68004-DVB-KVM4-1 4-port KVM Switch Development Board

6. Flash Programming Utility

ASIX Electronics provides an application named AX6800x Windows In-System Programming tool (AX6800xISP.exe) to program AX6800x Flash memory, Software Configuration data and Hardware Configuration data through UART0 port.

AX6800x Windows ISP tool is Windows dialog-based software program that can be run on Windows machine. The ISP program supports baud rates 921600 bps and 115200 bps.

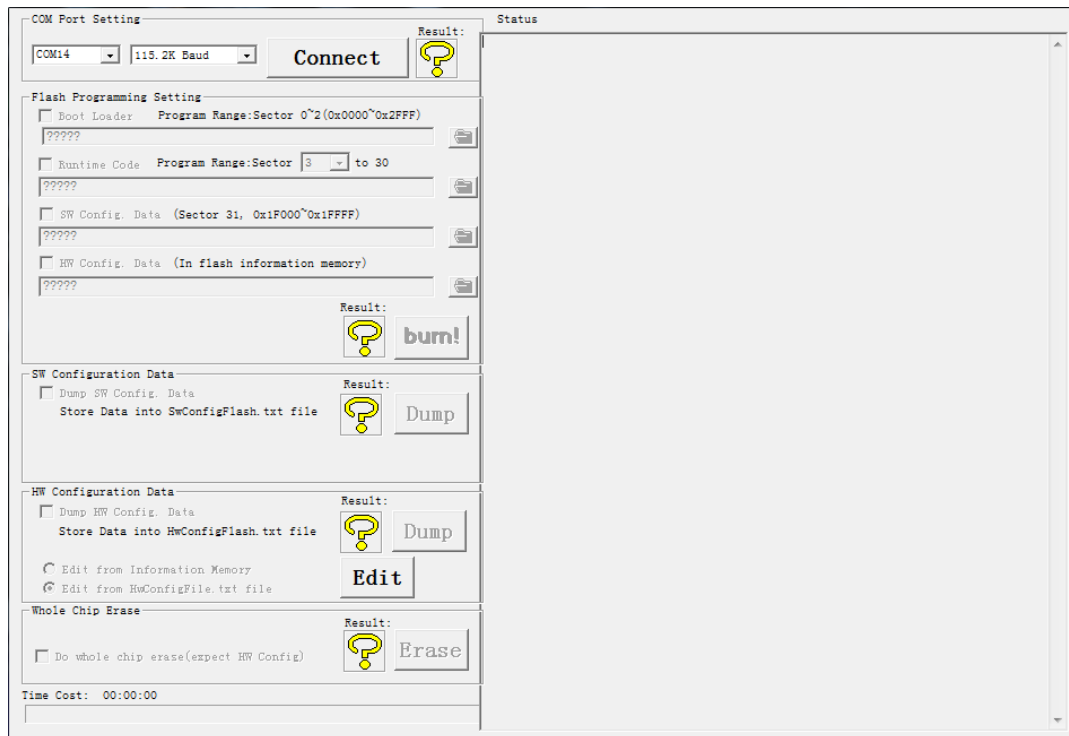


Figure 16. Main Window of AX6800x Window ISP Tool

7. Mass Production Solution

To support the mass production for those products using AX6800x chip. ASIX Electronics provides an AX6800x Multi-Port Mass Production Solution for AX6800x customers. The AX6800x Multi-Port Mass Production Solution is a Windows dialog-based software tool that can be used to program four AX6800x chip on products at the same time.

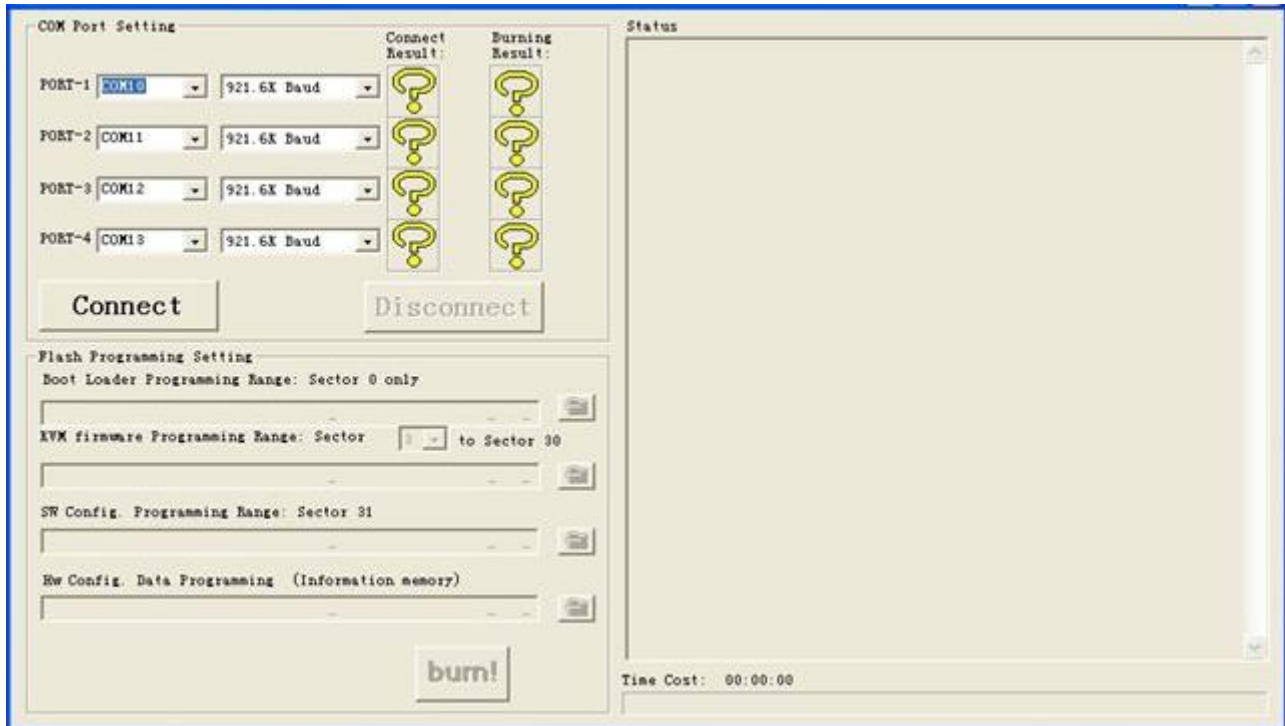


Figure 17. Main Window of AX6800x Multi-Port Mass Production Solution

8. Software Development Tools

8-1. Software Compiler Tool

All the software modules for AX6800x family are developed in C language on Keil IDE development environment. User can purchase the Keil IDE Development Environment from Keil's web site at <http://www.keil.com/c51/selector.asp>. In general, user needs to purchase the PK51 development tool for C-language compiler, debugger and simulator. User can also download the Keil C51 evaluation software for free from Keil's web site, but the evaluation software can only compile the sample codes with less than 2K bytes binary code.

8-2. Software Debugger Tool

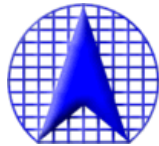
AX6800x currently provides two debug tool solutions, one is the UART console debug; another is the Digital Core Design (DCD)'s DoCD HAD2 debugger. All the AX6800x software modules support some basic UART console debug function by default. If user needs more powerful debug tool like source level debug, AX6800x reference design board supports the DCD's DoCD Hardware Debugger – the HAD2 module. Through the HAD2 module, the software running on AX6800x reference design board can be real-time debugged.

User can purchase the HAD2 module from DCD and download the debugger software from DCD's web site at <http://www.dcd.pl/>. Please refer to DCD's provided DoCD HAD2 debugger documents for procedures to set up the DoCD HAD2 debugger environment.



Figure 18. DoCD HAD2 Debugger Module

Note: The DoCD HAD2 Debugger is optional for AX6800x user, and it can be purchased from Digital Core Design's web site (<http://www.dcd.pl/>). If you don't have the DoCD HAD2 Debugger, you can still debug AX6800x software through UART console debug method.



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