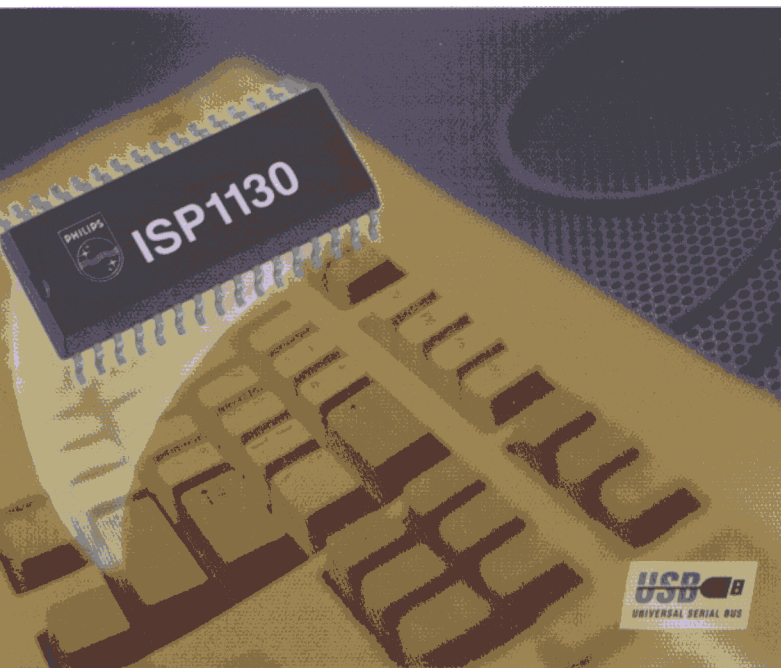


Add value to your keyboard products with a USB hub. Now it's practical, easy, and cost-effective with the ISP1130. A USB hub with keyboard controller compliant with industry standards, the ISP1130 incorporates all major components on a single chip. It offers the optimal combination of integration, features, cost and quality.

## ISP1130 USB hub with keyboard controller

### Single-chip solution for USB keyboard applications



#### Features

- High integration: hub repeater, hub controller, Serial Interface Engine (SIE), data transceivers, 80C51 microcontroller, keyboard controller, and 5-to-3.3V voltage regulator on one chip
- Compliant with: Universal Serial Bus Specification Rev. 1.1, Device Class Definition for Human Interface Devices (HID) Version 1.1, and ACPI™, OnNow™, and USB power management requirements
- Two bus-powered downstream ports with autospeed detection
- Three non-removable embedded functions, one dedicated to keyboard
- Scan-line matrix (8 x 18) for keyboard application
- Integrated 80C51 microcontroller core has 8 kbytes ROM and 256 bytes RAM
- External EEPROM for user-defined Vendor ID, Product ID, String Descriptors, and selection of keyboard matrix
- Individual power switching and individual overcurrent protection with built-in sense circuits for downstream ports
- Low EMI: uses a 6MHz crystal oscillator with on-chip PLL
- In-circuit ESD protection of higher than 8 kV
- CoolStroke™ software utility for multimedia keyboard functionality
- SDIP56 and SSOP56 packages
- OTP version: ISP1132

The ISP1130 lets you put advanced USB functionality into your PC a way that's competitive, economical, and speeds time-to-market. This robust, reliable solution minimizes electromagnetic interference and provides a high level of internal electrostatic discharge protection. The two bus-powered downstream ports can interface low-power USB devices such as a joystick or a mouse. The device's low power consumption in suspend mode along with the programmable LazyClock™ output allows easy design of equipment compliant with ACPI™, OnNow™, and USB power management requirements.

The ISP1130 is packed with components on a single chip. The integrated keyboard controller is based on the industry-standard 80C51 microcontroller and has 8 kbytes of ROM and 256 bytes of RAM. The hub controller is fully implemented in hardware, ensuring a fast response to host requests. Also included are three non-removable embedded functions (one for keyboard operation), and a 5 to 3.3V regulator that allows direct connection to the USB power supply  $V_{BUS}$ .

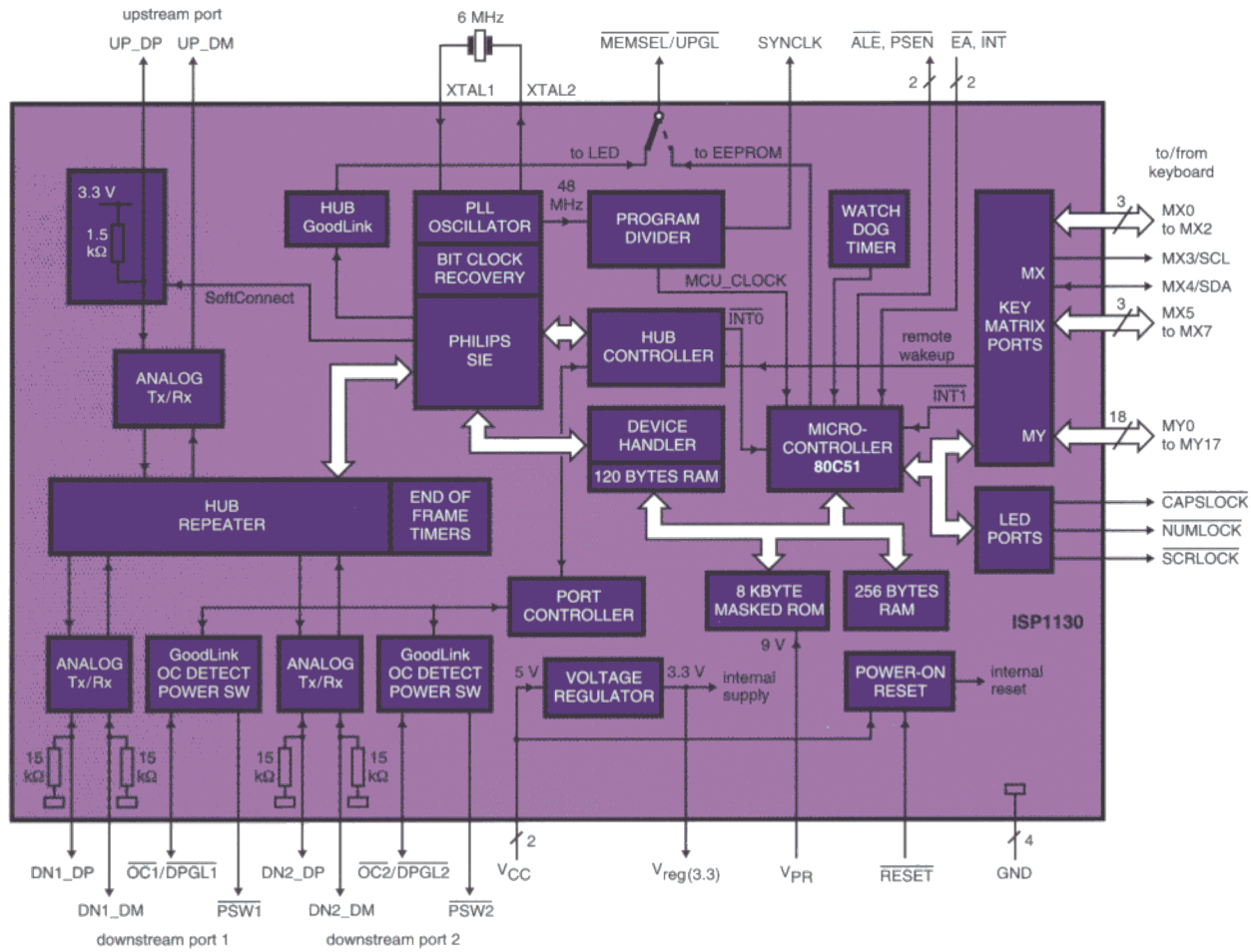
Full-scan design with high fault coverage ensures superior quality in the ISP1130. An external EEPROM enables user-defined vendor ID, product ID, string descriptors, and selection of keyboard matrix. The ISP1130 uses the Philips Semiconductors' SoftConnect™ technology to connect to the USB host when it detects a signal. All ports in the ISP1130, including the hub, have a GoodLink™ indicator that enables visual monitoring of USB traffic. There is also an on-chip watchdog timer for automatic fault recovery, internal power-on reset, and low voltage reset circuit.

The ISP1130 features the CoolStroke™ utility software, which offers multimedia keyboard functionality to USB keyboards that comply with the HID specification. It provides flexibility for configuration of keys for user-defined actions, CD, audio, and desktop controls, an incoming mail alert message, and Internet and security features. A hub keyboard demonstration board will be available for the ISP1130. The OTP version of this device, the ISP1132, has 24 kbytes ROM and 768 bytes on-chip RAM.

Let's make things better.



PHILIPS



Philips Semiconductors – a worldwide company

Argentina: see South America  
 Australia: Tel. +61 2 9805 4455, Fax. +61 2 9805 4466  
 Austria: Tel. +43 1 60 101 1248, Fax. +43 1 60 101 1210  
 Belarus: Tel. +375 172 20 0733, Fax. +375 172 20 0773  
 Belgium: see The Netherlands  
 Brazil: see South America  
 Bulgaria: Tel. +359 2 68 9211, Fax. +359 2 68 9102  
 Canada: Tel. +1 800 234 7381, Fax. +1 800 943 0087  
 China/Hong Kong: Tel. +852 2319 7888, Fax. +852 2319 7700  
 Colombia: see South America  
 Czech Republic: see Austria  
 Denmark: Tel. +45 33 29 3333, Fax. +45 33 29 3905  
 Finland: Tel. +358 9 615 800, Fax. +358 9 6158 0920  
 France: Tel. +33 1 4099 6161, Fax. +33 1 4099 6427  
 Germany: Tel. +49 40 2353 60, Fax. +49 40 2353 6300  
 Hungary: see Austria  
 India: Tel. +91 22 493 8541, Fax. +91 22 493 0966

Indonesia: Tel. +62 21 794 0040 ext. 2501, Fax. +62 21 794 0080  
 Ireland: Tel. +353 1 7640 000, Fax. +353 1 7640 200  
 Israel: Tel. +972 3 645 0444, Fax. +972 3 649 1007  
 Italy: Tel. +39 02 67 52 2531, Fax. +39 02 67 52 2557  
 Japan: Tel. +81 3 3740 5130, Fax. +81 3 3740 5057  
 Korea: Tel. +82 2 709 1412, Fax. +82 2 709 1415  
 Malaysia: Tel. +60 3 750 5214, Fax. +60 3 757 4880  
 Mexico: Tel. +9-5 800 234 7381, Fax. +9-5 800 943 0087  
 Middle East: see Italy  
 Netherlands: Tel. +31 40 27 82785, Fax. +31 40 27 88399  
 New Zealand: Tel. +64 9 849 4160, Fax. +64 9 849 7811  
 Norway: Tel. +47 22 74 8000, Fax. +47 22 74 8341  
 Pakistan: see Singapore  
 Philippines: Tel. +63 2 816 6380, Fax. +63 2 817 3474  
 Poland: Tel. +48 22 612 2831, Fax. +48 22 612 2327  
 Portugal: see Spain  
 Romania: see Italy

Russia: Tel. +7 095 755 6918, Fax. +7 095 755 6919  
 Singapore: Tel. +65 350 2538, Fax. +65 251 6500  
 Slovakia: see Austria  
 Slovenia: see Italy  
 South Africa: Tel. +27 11 471 5404, Fax. +27 11 471 5398  
 South America: Tel. +55 11 821 2333, Fax. +55 11 821 2382  
 Spain: Tel. +34 93 301 6312, Fax. +34 93 301 4107  
 Sweden: Tel. +46 8 5985 2000, Fax. +46 8 5985 2745  
 Switzerland: Tel. +41 1 488 2741, Fax. +41 1 488 3263  
 Taiwan: Tel. +886 2 2134 2886, Fax. +886 2 2134 2874  
 Thailand: Tel. +66 2 745 4090, Fax. +66 2 398 0793  
 Turkey: Tel. +90 216 522 1500, Fax. +90 216 522 1813  
 Ukraine: Tel. +380 44 264 2776, Fax. +380 44 268 0461  
 United Kingdom: Tel. +44 181 730 5000, Fax. +44 181 754 8421  
 United States: Tel. +1 800 234 7381, Fax. +1 800 943 0087  
 Uruguay: see South America  
 Vietnam: see Singapore  
 Yugoslavia: Tel. +381 11 62 5344, Fax. +381 11 63 5777

© Philips Electronics N.V. 1999

Internet: <http://www.semiconductors.philips.com>

All rights reserved. Reproduction in whole or in part is prohibited without the prior written consent of the copyright owner. The information presented in this document does not form part of any quotation or contract, is believed to be accurate and reliable and may be changed without notice. No liability will be accepted by the publisher for any consequence of its use. Publication thereof does not convey nor imply any license under patent - or industrial or intellectual property rights.

All other company or product names are trademarks of their respective owners.

Printed in the USA

Date of release: November 1999 9397-750-06588

SUNSTAR 商斯达实业集团是集研发、生产、工程、销售、代理经销、技术咨询、信息服务等为一体的高科技企业，是专业高科技电子产品生产厂家，是具有 10 多年历史的专业电子元器件供应商，是中国最早和最大的仓储式连锁规模经营大型综合电子零部件代理分销商之一，是一家专业代理和分销世界各大品牌 IC 芯片和电子元器件的连锁经营综合性国际公司，专业经营进口、国产名厂名牌电子元件，型号、种类齐全。在香港、北京、深圳、上海、西安、成都等全国主要电子市场设有直属分公司和产品展示展销窗口门市部专卖店及代理分销商，已在全国范围内建成强大统一的供货和代理分销网络。我们专业代理经销、开发生产电子元器件、集成电路、传感器、微波光电元器件、工控机/DOC/DOM 电子盘、专用电路、单片机开发、MCU/DSP/ARM/FPGA 软件硬件、二极管、三极管、模块等，是您可靠的一站式现货配套供应商、方案提供商、部件功能模块开发配套商。商斯达实业公司拥有庞大的资料库，有数位毕业于著名高校——有中国电子工业摇篮之称的西安电子科技大学（西军电）并长期从事国防尖端科技研究的高级工程师为您精挑细选、量身订做各种高科技电子元器件，并解决各种技术问题。

微波光电部专业代理经销高频、微波、光纤、光电元器件、组件、部件、模块、整机；电磁兼容元器件、材料、设备；微波 CAD、EDA 软件、开发测试仿真工具；微波、光纤仪器仪表。欢迎国外高科技微波、光纤厂商将优秀产品介绍到中国、共同开拓市场。长期大量现货专业批发高频、微波、卫星、光纤、电视、CATV 器件：晶振、VCO、连接器、PIN 开关、变容二极管、开关二极管、低噪晶体管、功率电阻及电容、放大器、功率管、MMIC、混频器、耦合器、功分器、振荡器、合成器、衰减器、滤波器、隔离器、环行器、移相器、调制解调器；光电子元件和组件：红外发射管、红外接收管、光电开关、光敏管、发光二极管和发光二极管组件、半导体激光二极管和激光器组件、光电探测器和光接收组件、光发射接收模块、光纤激光器和光放大器、光调制器、光开关、DWDM 用光发射和接收器件、用户接入系统光收发器件与模块、光纤连接器、光纤跳线/尾纤、光衰减器、光纤适配器、光隔离器、光耦合器、光环行器、光复用器/转换器；无线收发芯片和模组、蓝牙芯片和模组。

更多产品请看本公司产品专用销售网站：

商斯达中国传感器科技信息网：<http://www.sensor-ic.com/>

商斯达工控安防网：<http://www.pc-ps.net/>

商斯达电子元器件网：<http://www.sunstare.com/>

商斯达微波光电产品网：[HTTP://www.rfoe.net/](http://www.rfoe.net/)

商斯达消费电子产品网：<http://www.icasic.com/>

商斯达实业科技产品网：<http://www.sunstars.cn/> 微波元器件销售热线：

地址：深圳市福田区福华路福庆街鸿图大厦 1602 室

电话：0755-82884100 83397033 83396822 83398585

传真：0755-83376182 (0) 13823648918 MSN: SUNS8888@hotmail.com

邮编：518033 E-mail:[szss20@163.com](mailto:szss20@163.com) QQ: 195847376

深圳赛格展销部：深圳华强北路赛格电子市场 2583 号 电话：0755-83665529 25059422

技术支持：0755-83394033 13501568376

欢迎索取免费详细资料、设计指南和光盘；产品凡多，未能尽录，欢迎来电查询。

北京分公司：北京海淀区知春路 132 号中发电子大厦 3097 号

TEL: 010-81159046 82615020 13501189838 FAX: 010-62543996

上海分公司：上海市北京东路 668 号上海赛格电子市场 D125 号

TEL: 021-28311762 56703037 13701955389 FAX: 021-56703037

西安分公司：西安高新开发区 20 所(中国电子科技集团导航技术研究所)

西安劳动南路 88 号电子商城二楼 D23 号

TEL: 029-81022619 13072977981 FAX:029-88789382