

SHDSL-EFM

Speed ■ Distance ■ Reliability

SHDSL Applications and Benefits

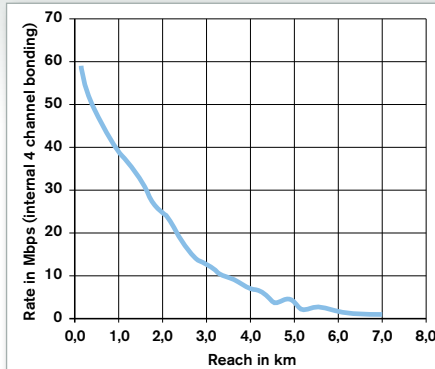
- Nothing beats SHDSL when it comes to high data rate requirements on long copper loops.

Many new communication challenges across the Telecom, Industrial and Smart City markets require robust broadband connections over long distances. Designers are turning to SHDSL for new applications such as:

- Surveillance cameras
- Vending machines
- Public displays
- Traffic control
- Industrial communication

60 Mbps or 15 Kilometers

- The Intel® SOCRATES™ family supports up to 60 Mbps using four-pair bonding, 15 Mbps per pair.
- Customers using Intel® SOCRATES™ in the field have achieved broadband speeds at distances over 15km, depending on the cable characteristics.



Rate/Reach Performance Measurement
 Intel® SOCRATES™-4e V1.2. Extended PAM, cross-talk-cancelled, sequential startup, 4-pair bonding, standard twisted copper pair phone cables, no alien noise

Courtesy of Intel and Teleconnect

Fast Time to Market

- Industry experts at design specialist companies such as Teleconnect GmbH – who provided design services for the Intel® SOCRATES™ Evaluation Board – can help bring designs to market in as little as 3 months.

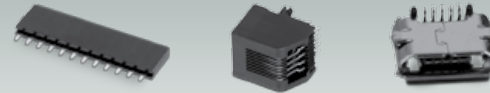
Würth Electronics Midcom

more than you expect



Transformers

SHDSL Transformer designed for Intel® SOCRATES™ family



MID-DSLITL 750510578

Connectors & Switches	
Product Description	Product Family
2.54mm THT Dual Pin Header	WR-PHD
Modular Jack Horizontal Half Shielded 8P8C Tab Down	WR-MJ
Modular Jack Horizontal Plastic 8P8C Tab Down	WR-MJ
Micro USB SMT Type B Horizontal 5 Contacts	WR-COM
1.27 mm small compact SMD flat actuator with top tape	WS-DISV
7x7 mm washable SMD, arrow type	WS-ROSV
4.5x4.5 mm SMD	WS-TASV

Discrete LAN Transformer

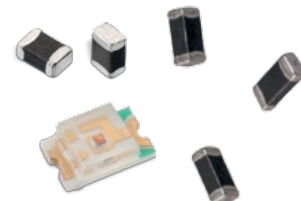


WE-LAN 749020010A

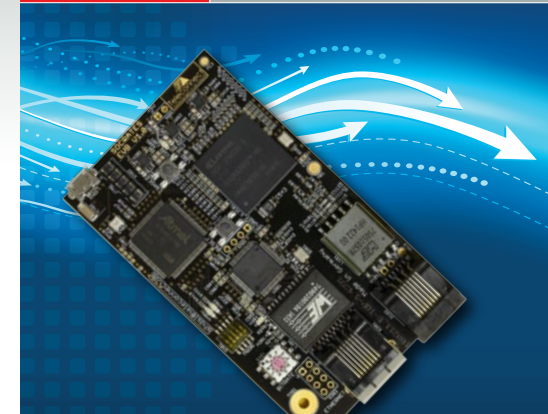


Capacitors		
Product Description	Product Family	Value
Ceramic Capacitors	WCAP-CSGP	10n
Ceramic Capacitors	WCAP-CSGP	100n
Ceramic Capacitors	WCAP-CSGP	1n
Ceramic Capacitors	WCAP-CSGP	22p
Ceramic Capacitors	WCAP-CSGP	2p2
Ceramic Capacitors	WCAP-CSGP	33p
Ceramic Capacitors	WCAP-CSGP	470p
Ceramic Capacitors	WCAP-CSGP	4p7
Ceramic Capacitors	WCAP-CSGP	3n3
Ceramic Capacitors	WCAP-CSGP	10µ
Ceramic Capacitors	WCAP-CSGP	4µ7

Inductors, Ferrites & LEDs		
Product Description	Product Family	Value
Multilayer Power Inductor	WE-PMI	20µ
SMD EMI Suppression Ferrite Bead	WE-CBF	300R
SMD EMI Suppression Ferrite Bead	WE-CBF	30R
SMD chip LED top view mono-color waterclear	WL-SMCW	
SMD chip LED top view mono-color waterclear	WL-SMCW	



Intel® SOCRATES™ Evaluation Board SHDSL-EFM Modem

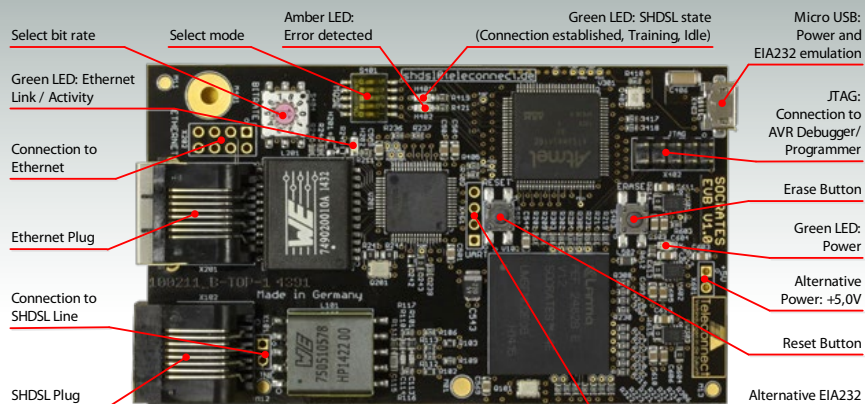


Features:

- Intel® SOCRATES™ transceiver
- Selectable bitrate (including auto mode)
- Use as EFM Modem, SHDSL-EFM-Module or Plug & Play Ethernet Extender
- USB EIA232 emulation or TTL compatible EIA232 interface
- On Board software

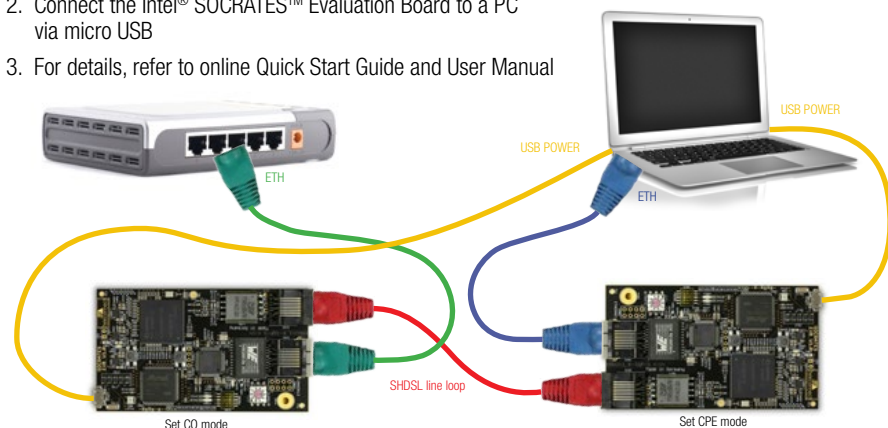


Getting Started



Install Software

1. Download atm6124 USB driver online and install to a PC to be able to connect via terminal window for debug outputs.
2. Connect the Intel® SOCRATES™ Evaluation Board to a PC via micro USB
3. For details, refer to online Quick Start Guide and User Manual



Configuration

- The Intel® SOCRATES™ Evaluation Board has 3 modes
 1. EFM Modem
 2. SHDSL EFM Module
 3. Plug and Play Ethernet Extender

EFM Modem

- Select Bitrate using rotary switch
- Select Mode using DIP switch
- Connect SHDSL line to SHDSL plug
- Connect Ethernet using Ethernet plug
- Connect Micro USB port for power

SHDSL-EFM Module

- Select Bitrate using rotary switch
- Select Mode using DIP switch
- Connect SHDSL line via the SHDSL pin header
- Connect Ethernet via the Ethernet pin header
- Connect +5.0V_{DC} power via the power pin header

Plug and Play Ethernet Extender

- Select Bitrate using rotary switch
- Using the DIP switch '1', set one board to STU-C (master) and the other to STU-R (slave)
- Connect SHDSL ports together with twisted pair (e.g. Ethernet CAT 5 patch cable)
- Connect Ethernet ports to PC and router/switch/LAN
- Power up and the connection will establish after a few



Intel® SOCRATES™ EVB Support Partners



About Wurth Electronics Midcom:

Wurth Electronics Midcom is a global leader in the design and manufacture of custom magnetics. Customers in Asia, Europe and the Americas are supported through local direct technical sales network, regional design and applications engineers and manufacturing based in the People's Republic of China. The mission has always been to thoroughly satisfy the needs of our customers with highest quality design and service. Our customers are our top priority.

www.we-online.com/midcom



About Intel:

The Connected Home Division of Intel provides the industry's broadest portfolio of essential technologies for the broadband services that power smart, connected homes. From high-speed access and intelligent broadband gateways, Ethernet and voice, and carrier-grade WiFi access points, Intel chips and software transform people's digital lives by delivering trusted and effortless connected home experiences to residential customers.

www.intel.com



About Teleconnect:

Our business began as the Dresden branch of the former Institute for Telecommunications, which since the late 60s has developed optical transmission systems. With the wealth of experience provided by numerous product developments, TeleConnect GmbH began business on June 27th, 1990 as an engineering and contract development provider. Our clients are renowned companies in the electronics industry in the fields of telecommunications, data communications and automation technology who appreciate the employees of TeleConnect GmbH as competent and reliable partners for demanding development tasks.

www.teleconnect.de