

Microcontrollers for Advanced Lighting Solutions



TI's MCU lighting solutions give designers efficient, flexible and scalable intelligent lighting management and control

Intelligent lighting is the ability to reduce the amount of light and/or energy used so that only the right amount of light is delivered exactly where it is needed. Digitally controlled lighting using microcontrollers (MCUs) allows developers to take advantage of the

unique characteristics of LEDs and other light sources to develop efficient, scalable and flexible designs for intelligent lighting. With digital control, designers can scale and easily adjust designs to multiple applications, maximizing reuse and decreasing design

time. A digital approach also allows many hardware features, such as soft startup, delay and PWM phase shifting, to be implemented in software, eliminating extra components, cost and complexity. TI's communications and control solutions are for both wired and wireless systems supporting a wide selection of communication standards.

Texas Instruments offers a broad suite of microcontroller solutions for your LED and other lighting design and control needs as well as demonstration platforms and development kits. The table to the left is a sample of what is available now. For more information on these and new products throughout the year, visit www.ti.com/mculighting.

Solution/Protocol	Product	Tool/Kit	For more info
DALI	MSP430™ MCU/ Piccolo™ (C2000™ MCU)	TPS62660 LED-338 EVM TMDSIACLEDCOMKIT	www.ti.com/daliappnote
DMX512	MSP430 MCU/ Stellaris®/ Piccolo (C2000 MCU)	DMX512 apps note Third-party design TMDSIACLEDCOMKIT	MSP430 – Demo code and reference design is available upon request at www.ti.com/technicalsupport ; Stellaris – Available through third-party Golden IC Technology Co., Ltd. support@golden-ic.com
Power line communication	C2000 MCUs	TMDSPCLKIT-V3 TMDSIACLEDCOMKIT	www.ti.com/plc
ZigBee® / 802.15.4	MSP430F54xxA	MSP430F5438 Experimenter's Board	www.ti.com/msp430f5438
6LoWPAN	CC430 (MSP430 MCU + Low-Power RF)	Third-party design	Available through third-party Sensinode, www.sensinode.com/EN/contact
Digital power	Piccolo (C2000 MCU)	TMDSDCDCLEDKIT TMDSRGBLEDKIT TMDSIACLEDCOMKIT	www.ti.com/led_devkit www.ti.com/rgb_led www.ti.com/tool/tmdsiacledcomkit
Digital signal control (with many PWMs)	Stellaris LM4F	Evaluation kit with up to 40 PWM outputs	www.ti.com/cortexm4f
Control, sensing and dimming solutions	MSP430 MCU	Development and evaluation kits	www.ti.com/msp430

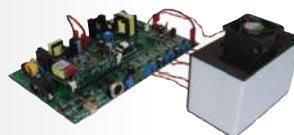
Key benefits

- Support for industry-standard communications: Power line communications (PLC), DALI, DMX512, ZigBee®, 6LoWPAN, and many others
- Design flexibility and scalability for maximum reuse of designs and cost management
- High-efficiency control of LEDs and other light sources
- Intelligent lighting management enables smarter light fixtures to handle lumen maintenance to improve reliability and lifetime of LEDs
- Power supply integration through digital power for an adaptable, full-system design with fewer components
- Accelerated development with extensive array of evaluation tools and kits

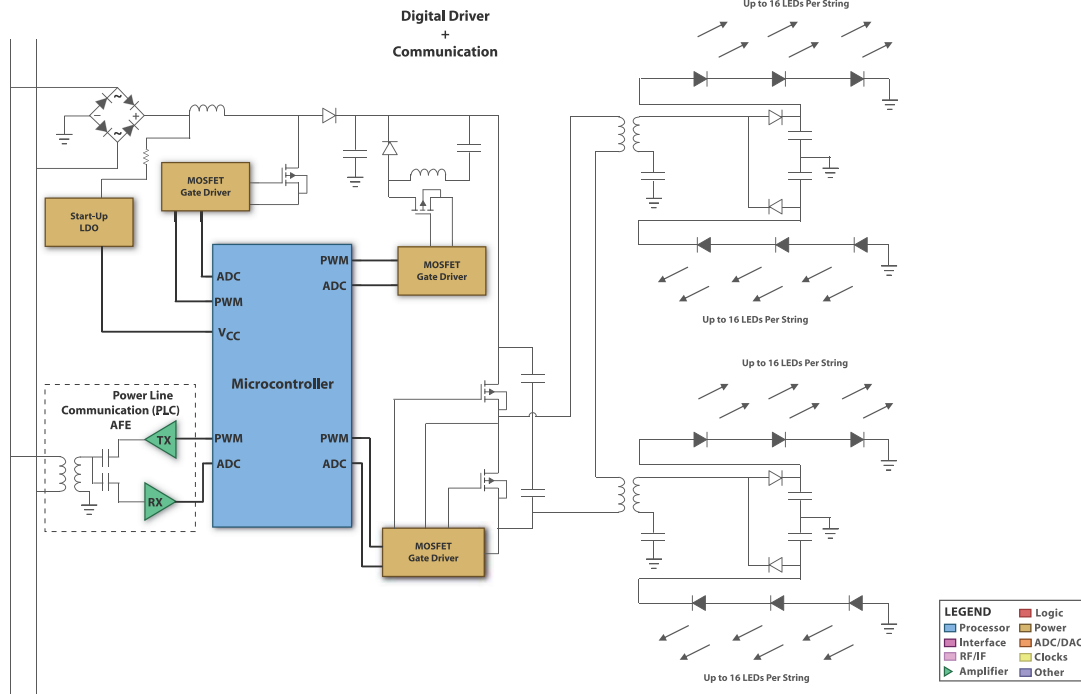
Create intelligent lighting products with Piccolo MCUs:

- Independent dimming of 6 LED strings
- Communications support including: DALI, DMX512, and Power Line Communications (PLC)
- Intelligent MCU control of power stage, lighting, and communications
- Full AC mains-powered reference design

Piccolo AC LED Lighting & Communications Kit TMDSIACLEDCOMKIT



MCU Advanced Lighting: Multi-String LED Driver



▲ Digital control of LEDs using MCUs allows developers to take full advantage of the unique characteristics of LEDs. TI's C2000™ and Piccolo™ real-time MCUs can perform all power management functions needed in a lighting product, giving flexibility for regional products or quick design spins. MCUs have a low-cost adder for additional LED strings, a high-dimming ratio of greater than 20,000:1 and a high PWM-dimming frequency of >100KHz. Digital communications can be achieved via wired or wireless communications through a number of different communication standards including 6LoWPAN and power line communications. TI offers microcontroller solutions for all your LED lighting design and control needs, including demonstration platforms and development kits. Visit www.ti.com/led for more information.

TI Worldwide Technical Support

Internet

TI Semiconductor Product Information Center Home Page

support.ti.com

TI E2E™ Community Home Page

e2e.ti.com

Product Information Centers

Americas	Phone	+1(972) 644-5580
Brazil	Phone	0800-891-2616
Mexico	Phone	0800-670-7544
	Fax	+1(972) 927-6377
	Internet/Email	support.ti.com/sc/pic/americas.htm

Europe, Middle East, and Africa

Phone		
European Free Call	00800-ASK-TEXAS (00800 275 83927)	
International	+49 (0) 8161 80 2121	
Russian Support	+7 (4) 95 98 10 701	
Note: The European Free Call (Toll Free) number is not active in all countries. If you have technical difficulty calling the free call number, please use the international number above.		
Fax	+ (49) (0) 8161 80 2045	
Internet	www.ti.com/asktexas	
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Japan

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Internet/Email	International	support.ti.com/sc/pic/japan.htm
	Domestic	www.tij.co.jp/pic

Asia

Phone		
International	+91-80-41381665	
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Note: Toll-free numbers do not support mobile and IP phones.		
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China	800-820-8682	
Hong Kong	800-96-5941	
India	1-800-425-7888	
Indonesia	001-803-8861-1006	
Korea	080-551-2804	
Malaysia	1-800-80-3973	
New Zealand	0800-446-934	
Philippines	1-800-765-7404	
Singapore	800-886-1028	
Taiwan	0800-006800	
Thailand	001-800-886-0010	
Fax	+8621-23073686	
Email	tiasia@ti.com or ti-china@ti.com	
Internet	support.ti.com/sc/pic/asia.htm	

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DLP® Products	www.dlp.com
DSP	dsp.ti.com
Clocks and Timers	www.ti.com/clocks
Interface	interface.ti.com
Logic	logic.ti.com
Power Mgmt	power.ti.com
Microcontrollers	microcontroller.ti.com
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OMAP Mobile Processors	www.ti.com/omap
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