

# Back to the Future.....

or more accurately

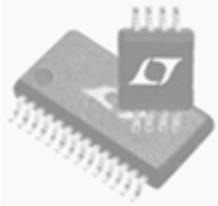
## Future Proofing 802.3at

IEEE 802.3at

Phoenix 1/06

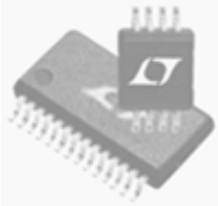
Clay Stanford

Linear Technology



# PROBLEM

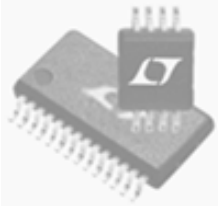
- Maximum power delivery is highly dependent on physical constraints of cable/connector system
- Large derating required in order to define worldwide standard which operates faultlessly in all environments
- Typical systems therefore operate far below capacity
- 802.3at standard has no provision to keep pace with technological improvements in cable/connector systems



# **SOLUTION**

## **ALLOW 802.3at SYSTEMS TO GRADE CABLE PLANT**

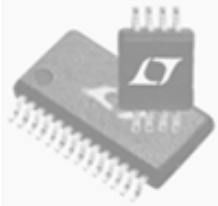
- **Include within specification provision to allow individual PoE systems ability to rate individual cable/connector installations and adjust maximum power delivery accordingly.**
- **Maximum power delivery can be based on physical limits of specific system, allowing higher power delivery in most cases**
- **Optimizes power delivery in specific system installations**
- **Provides method for 802.3at to grow with future technology**



# HOW IT WORKS

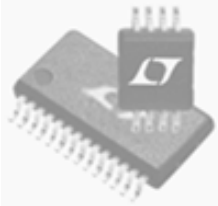
- 802.3at would define maximum power levels as is currently planned.
- This maximum power is limited by desire to have robust system performance in entire installed base without physical damage to cable insulation or connector contacts.
- Maximum power would apply to any non-graded PoE installation
- Grading of cable/connector system would be optional and could be implemented by system integrator for installations in which specific information about cable plant performance is known

# EXAMPLES WHERE GRADING WOULD BE BENEFICIAL



- System maximum temperature is known to be significantly less than 60C
- System is known to be using plenum cabling with higher temperature performance
- System doesn't include 2-drop shared cable configurations
- Closed system in which all system parameters are well controlled
- System is running on CAT-18AWG with RJ45-turbo





# WHAT'S NEEDED IN SPEC

- 802.3at sets maximum power delivery as planned based on robust performance for installed base without grading
- 802.3at includes classification up to 100W to cover future devices while setting upper safety limit
- 802.3at includes statement allowing grading of PoE systems to allow higher power levels for systems with known physical and environmental conditions