

Back to the Future.....

or more accurately

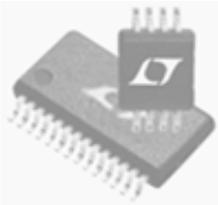
Future Proofing 802.3at

IEEE 802.3at

Phoenix 1/06

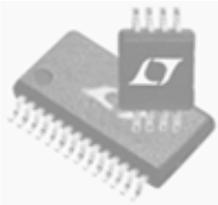
Clay Stanford

Linear Technology



PROBLEM

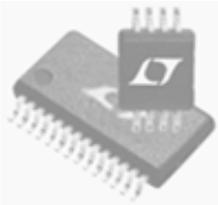
- **Maximum power delivery is highly dependent on physical constraints of cable/connector system**
- **Large derating required in order to define worldwide standard which operates faultlessly in all environments**
- **Typical systems therefore operate far below capacity**
- **802.3at standard has no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



SOLUTION

ALLOW 802.3at SYSTEMS TO GRADE CABLE PLANT

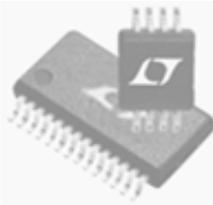
- Include within specification provision to allow individual PoE systems ability to rate individual cable/connector installations and adjust maximum power delivery accordingly.
- Maximum power delivery can be based on physical limits of specific system, allowing higher power delivery in most cases
-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



HOW IT WORKS

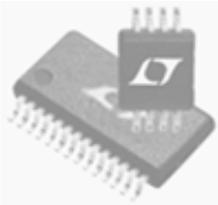
- **802.3at would define maximum power levels as is currently planned.**
- **This maximum power is limited by desire to have robust system performance in entire installed base without physical damage to cable insulation or connector contacts.**
- **Maximum power would apply to any non-graded PoE installation**
- **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**