

Physics 536 - Project

Instructions: Pick a particular electronic component, device or *small* system, and prepare a 2-3 page report describing applications, operating principles, design considerations and examples.

For example, if you selected *lock-in amplifiers* you would describe how they are used for making very low-noise current and voltage measurements on devices that are maintained at very low temperatures.

You can use a variety of resources for picking a topic. Some suggestions are

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|-----------------------------|---|------------------------------------|
| Physics Today | | Look at the advertisements |
| Keithley | http://www.keithley.com | Measurement devices |
| Analog Devices | http://www.analog.com | Analog/Digital integrated circuits |
| Dallas/Maxim Semiconductors | http://www.maxim-ic.com | Integrated circuits |
| ATMEL | http://www.atmel.com/products | CCD image sensors |
| Fairchild Semiconductor | http://www.fairchildsemi.com | All kinds of stuff |
| ON Semiconductor | http://www.onsemi.com | All kinds of stuff |
| Vishay | http://www.vishay.com | Active discrete components |
| Texas Instruments | http://www.ti.com | All kinds of stuff |
| AVX Corp. | http://www.avxcorp.com | Capacitors |

Examples of devices or instruments you might want to describe include

- Lock-in amplifiers
- Instrumentation amplifiers
- Different types of capacitors
- Component packaging
- Designing with ECL logic
- CCD image sensors
- Overview of VME bus protocols
- Fiber optics drivers/receivers

Check with me if you need help picking a topic or want to discuss the scope of your topic.