



# Cold Electronics Schedule

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Cold Electronics Review  
October 13, 2016

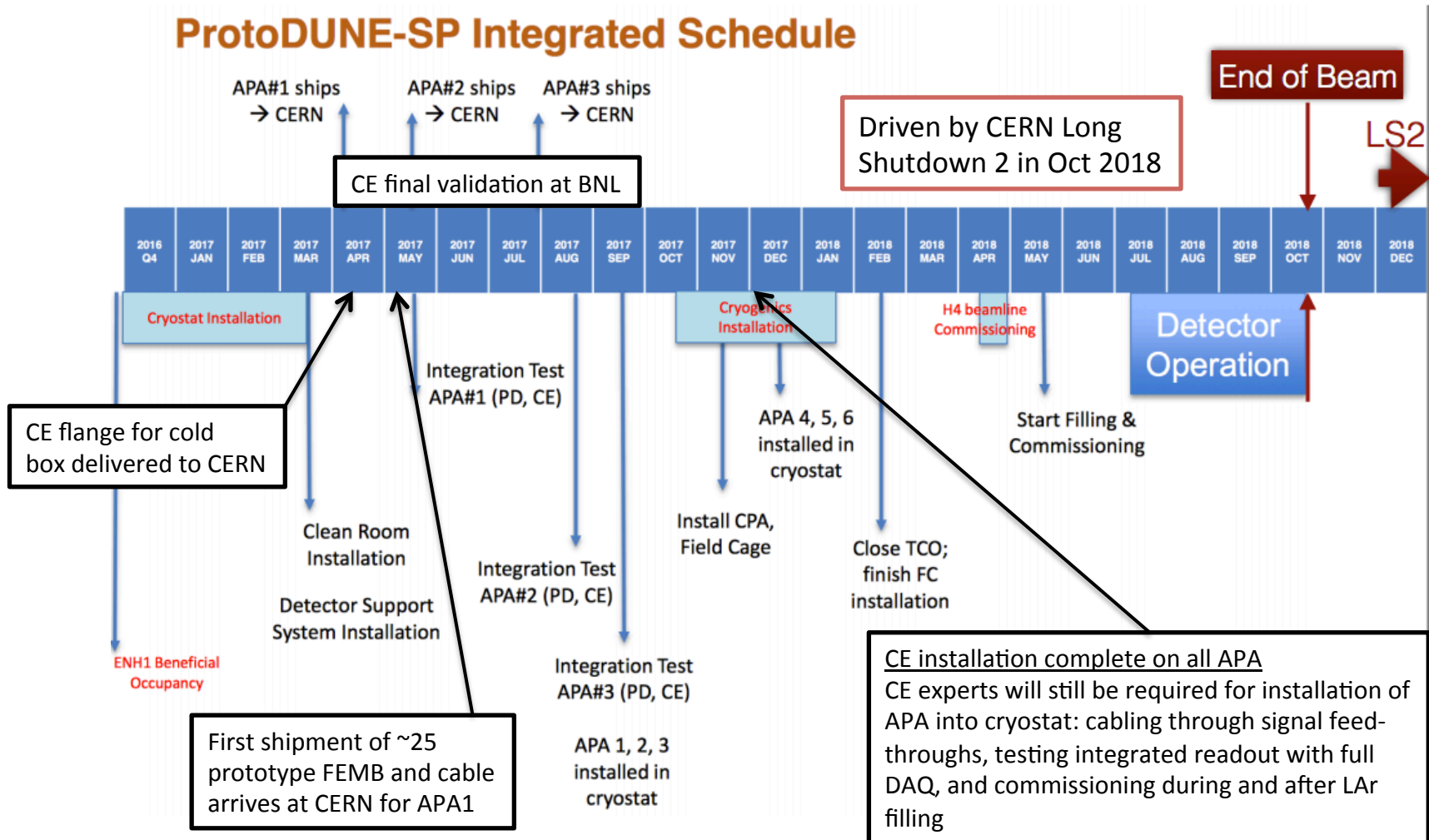


# Outline

- ProtoDUNE-SP schedule
- SBND schedule
- Conclusions

# ProtoDUNE-SP Schedule

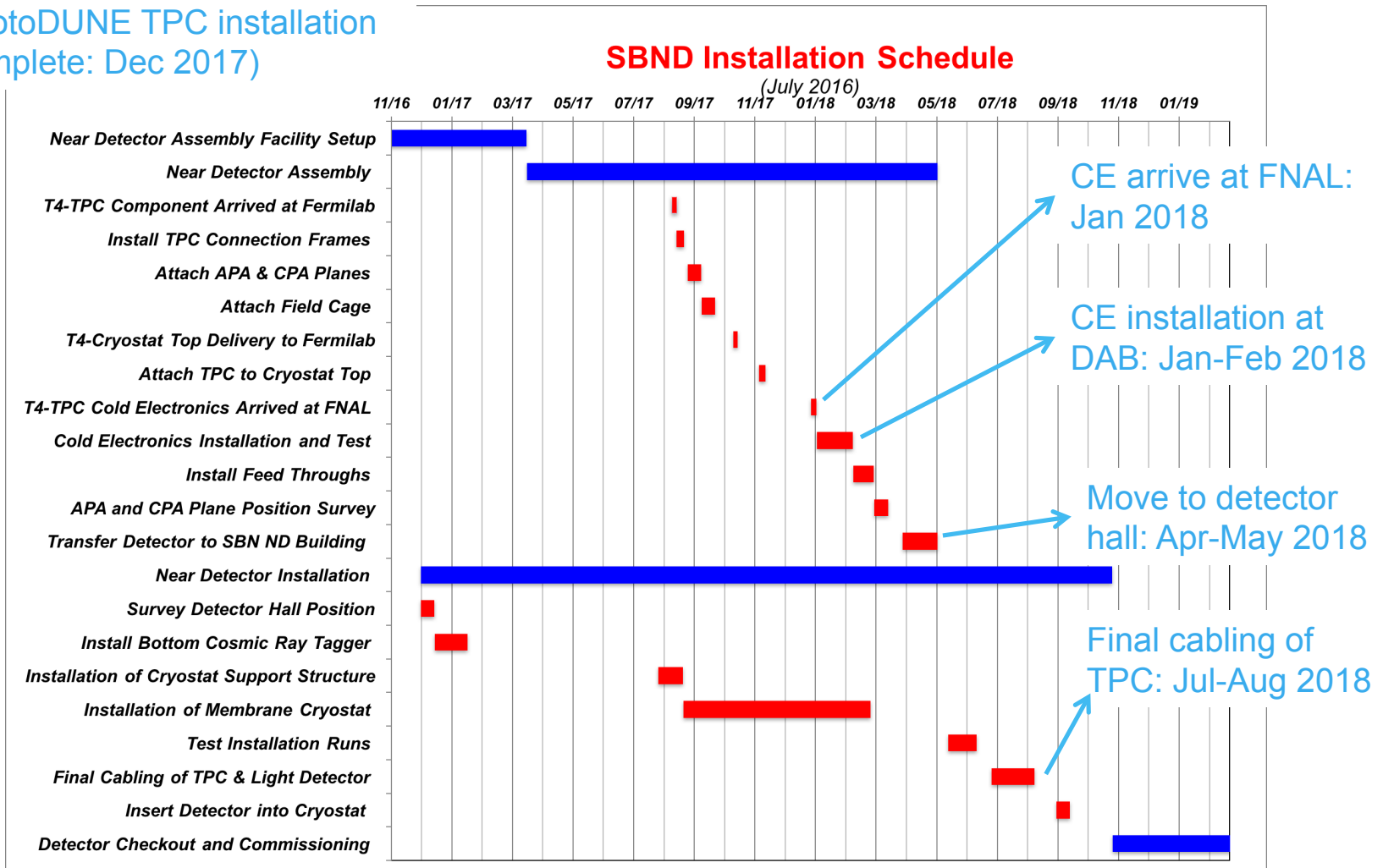
## ProtoDUNE-SP Integrated Schedule



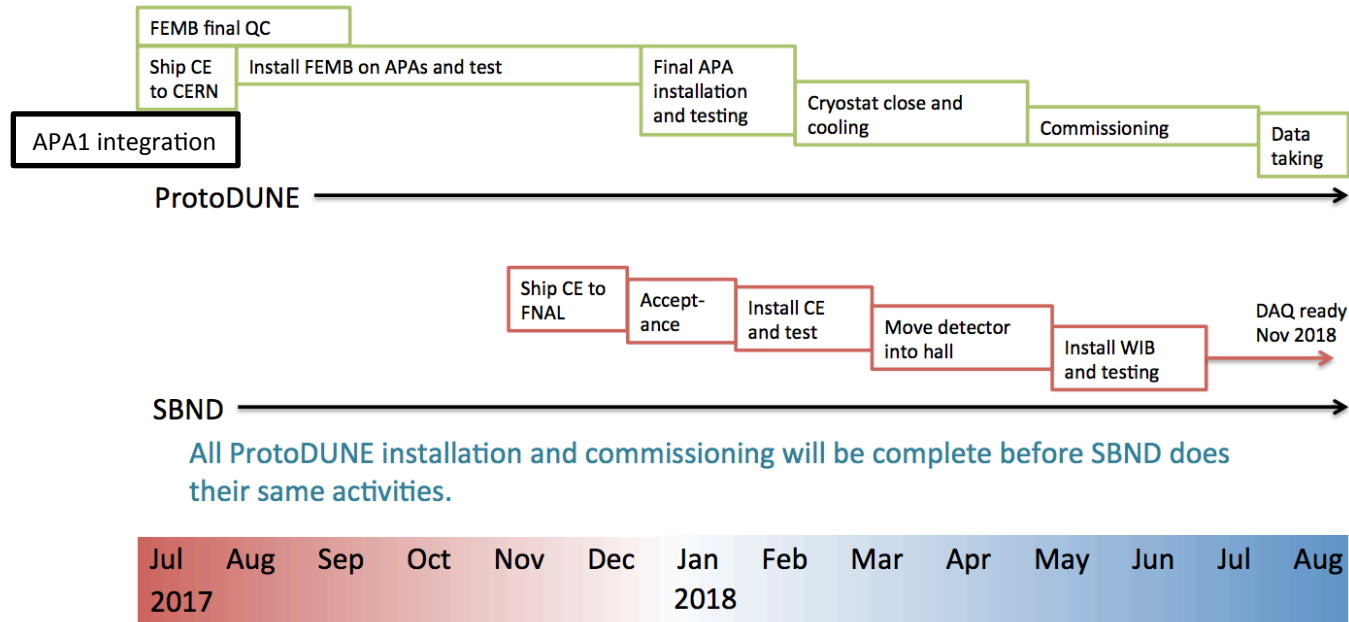


# SBND Schedule

(protoDUNE TPC installation complete: Dec 2017)



# SBND vs. ProtoDUNE-SP



Time regions where manpower resources are stretched (more than usual):

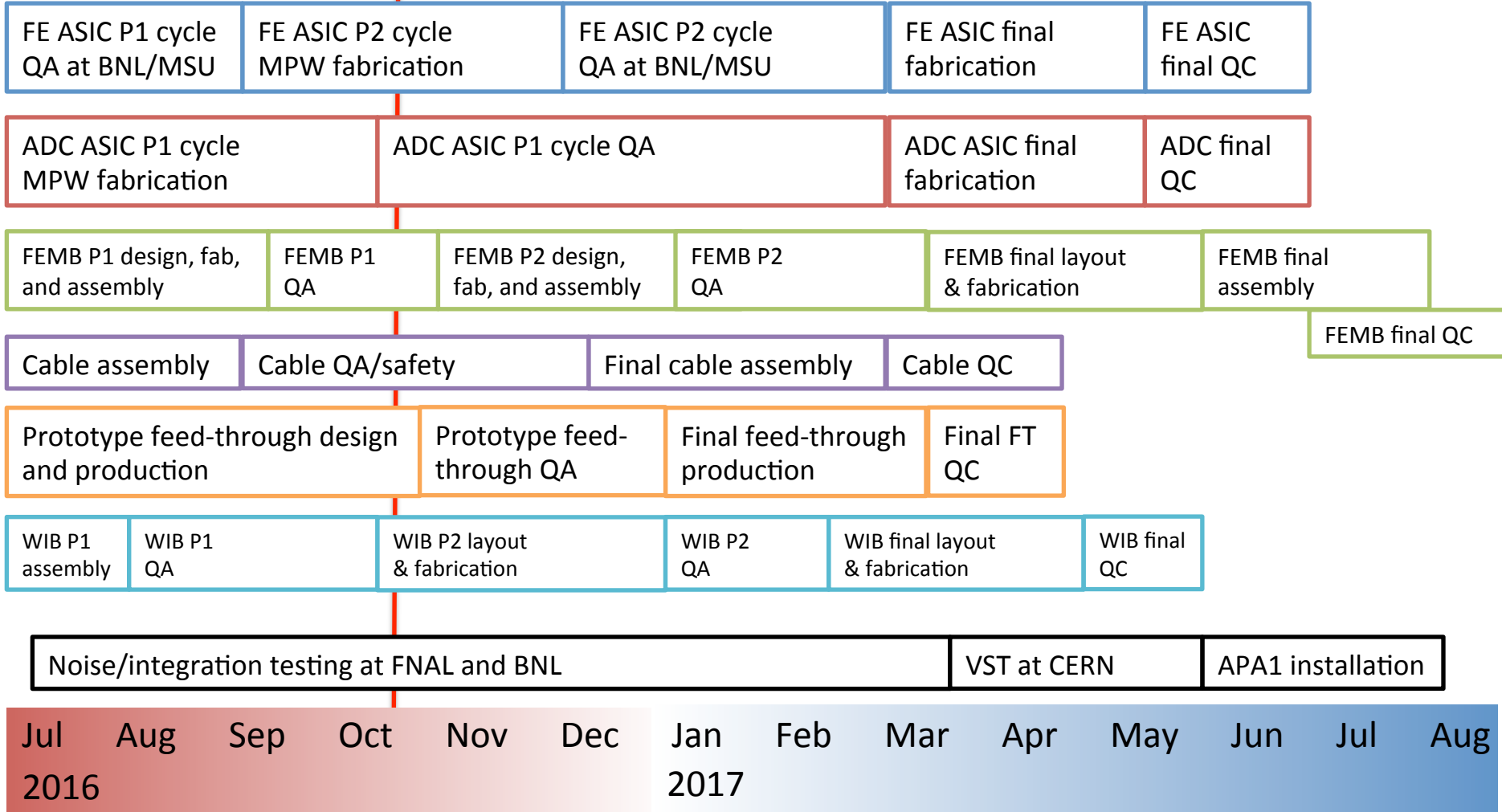
- May to August 2017: APA1 integration testing at CERN + CE final validation at BNL
- Jan/Feb 2018: final APA installation at CERN + CE acceptance and installation at FNAL
- May/June 2018: WIB installation and final CE checkout at FNAL + commissioning at CERN

Overall, SBND installation schedule is about 6 months behind ProtoDUNE-SP

- allows for subsequent production of ASIC/FEMB components

# ProtoDUNE Prototype Schedule

You are here



# Prototype Milestones

Prototype Development		Design	Fabrication	Test
Cold Electronics	FE ASIC	P1 ✓ P2 ✓	P1 ✓ P2 ongoing	P1 ✓ P2 December
	ADC ASIC	P1 ✓	P1 ✓	P1 ongoing
	FEMB AM	P1 ✓ P2 October	P1 ✓ P2 December	P1 ongoing P2 January
	FEMB FM	P1 ✓ P2 October	P1 ✓ P2 December	P1 ongoing P2 January
Cold Cable	Data	✓	✓	ongoing
	Power	✓	✓	ongoing
Signal Feed-through	Flange	✓	ongoing	October
	Flange PCB	✓	ongoing	October
	WEC	✓	✓	ongoing
Warm Electronics	WIB	P1 ✓ P2 ongoing	P1 ✓ P2 November	P1 ongoing P2 January
	PTB	✓	October	November
	PTC	✓	October	November

# Conclusions

Is the proposed joint ProtoDUNE-SP/SBND production, installation, and commissioning plan reasonable?

- Not really but
  - We have leveraged the already ongoing design progress for SBND
    - As many design choices are as similar as possible – also reduces load on designers
  - Additional effort has been added to cold electronics over the last year
    - Fermilab, MSU, UTA, Boston, UC Davis, LSU, Penn
  - Times when manpower resources will be tight have been identified
    - Adding new scientific support at BNL, recruiting extra groups to help with QC testing
- ProtoDUNE-SP has the more aggressive schedule to take beam data at CERN before October 2016
  - Current prototype schedule now driven by ProtoDUNE-SP
- SBND can use 6 months after production of ProtoDUNE-SP components to further iterate on ASIC/FEMB design