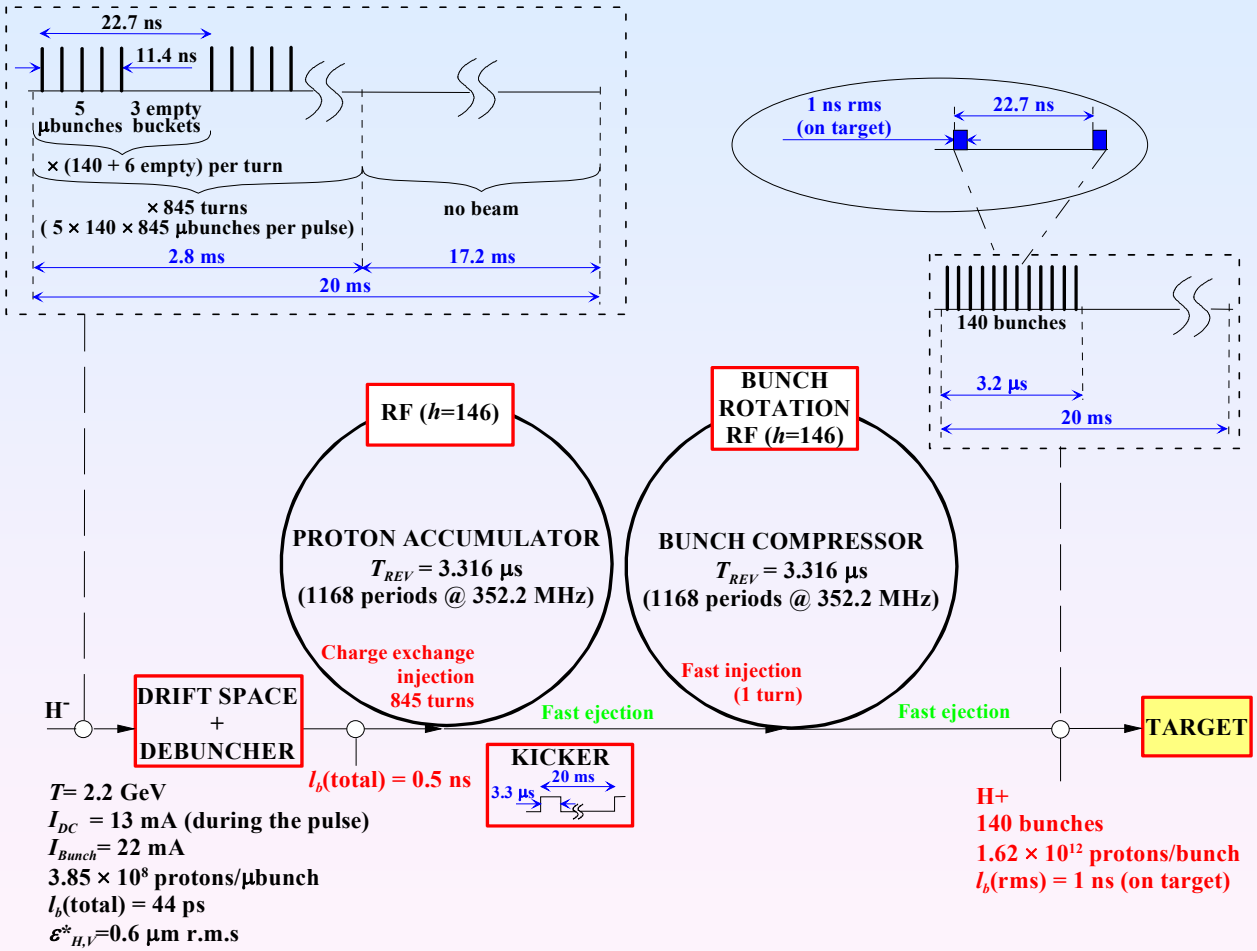
SPL beam characteristics – Jan 2006

	CDR1 [2000]	CDR2 [2006]	
energy	2.2	**3.5** ⇧	GeV
average beam power	4	**4**	MW
length	690	**450** ⇩	m
average RF power	24	**17.4** ⇩	MW
average cryogenics power	9.6	**6.7** ⇩	MW
repetition rate	50	**50**	Hz
beam pulse length	2.8	**0.57** ⇩	ms
average pulse current*	13	**40** ⇧	mA
peak current*	20.8	**64** ⇧	mA
beam duty cycle	14	**2.9** ⇩	%
peak RF power	32	**163** ⇩	MW
no. of 352.2 MHz klystrons (1 MW)	44	**14** ⇧	
no. of 704.4 MHz klystrons (5 MW)	-	**44**	
no. of tetrodes	79	**3**	
cryo temperature	4.5	**2** ⇩	K

* after chopping

Scenarios for accumulation & compression

With SPL CDR1 (2000): severe constraint due to the low beam energy



T	2.2 Gev
f_{rep}	50 Hz
N_p	2.27 10^{14}
l_b	1 ns
N_b	140
d_b	22.7 ns
C	3.316 μs

New Scenario – July 2006

- 5 GeV, 4 MW
- 0.4 ms, 50 Hz, 40 mA
- 1 x 10^{14} protons per pulse
- accumulator/compressor rings circumference ~ 300 m, ~1 μs
- 400 injection turns
- 5 bunches, 5 Mhz
- chopping 62.8%: 44 filled micro-bunches, 26 empty
- ΔE_{rms} ±1.5 MeV, $\Delta\varphi_{rms}$ 2.5° (704.4 Mhz)
- time interval for injection 15 μs