Abstract Submitted
for the DPP16 Meeting of
The American Physical Society

2-Shock layered tuning campaign LAURENT MASSE, T. DITTRICH, S. KHAN, Lawrence Livermore Natl Lab, G. KYRALA, Los Alamos Natl Lab, T. MA, S. MACLAREN, J. RALPH, J. SALMONSON, R. TIPTON, Lawrence Livermore Natl Lab, LOS ALAMOS NATL LAB TEAM, LAWRENCE LIVERMORE NATL LAB TEAM — The 2-Shock platform has been developed to maintain shell sphericity throughout the compression phase of an indirect-drive target implosion and produce a stagnating hot spot in a quasi 1D-like manner. A sub-scale, ˜1700 _m outer diameter, and thick, ˜200 _m, uniformly Silicon doped, gas-filled plastic capsule is driven inside a nominal size 5750 _m diameter ignition hohlraum. The hohlraum fill is near vacuum to reduce back-scatter and improve laser/drive coupling. A two-shock pulse of about 1 MJ of laser energy drives the capsule. The thick capsule prevents ablation front feed-through to the imploded core. This platform has demonstrated its efficiency to tune a predictable and reproducible 1-D implosion with a nearly round shape [1]. It has been shown that the high foot performance was dominated by the local defect growth due to the ablation front instability and by the hohlraum radiation asymmetries. The idea here is to take advantage of this 2-Shock platform to design a 1D-like layered implosion and eliminates the deleterious effects of radiation asymmetries and ablation front instability growth. We present the design work and our first experimental results of this near one-dimensional 2-Shock layered design. This work was performed under the auspices of the Lawrence Livermore National Security, LLC, (LLNS) under Contract No. DE-AC52-07NA27344
[1] S. Khan et al, Phys. Plasmas **23**, 042708 (2016)

Laurent Masse
Lawrence Livermore Natl Lab

Date submitted: 19 Jul 2016 Electronic form version 1.4