DEVELOPMENT SPRINT REVIEW
CALENDAR WEEK 16.22

GENERAL (1/3)

HIGHLIGHTS:

- Geometric dimensioning and tolerancing concept for SVC3 → Done
- Virtual build → Done
- Check PVC sealing concept with body structure → Done
- Prepare design release for 90% tool kickoff with supplier → Done
- Receive feedback from CFD simulation regarding open grille surface → Done
- Supply the final design for the air duct to ensure the feasibility of the bumper design → Done
- Deviation training for all squads → Done
- Bump stop design confirmed by supplier
- High voltage battery pack design verification plan close to being finalized

GENERAL (2/3)

- Bring not-ordered exterior parts for SVC3 to 0
- Timing plan (strength targets, consultancy, design freeze, validation) agreed with supplier for powertrain mounts and cast parts to support SVC3 and SVC4 and clear
- Crash and safety - SVC3 status review with supplier - low speed

IN PROGRESS:

- Necessity for measurement equipment → In progress
- State of hot spots on solar panels → In progress
- PMCS S1 deliverables 100% assessment → In progress
- Solve existing BOM errors with all squads → In review
- Migrate PM risk control matrix Group Sion to PMCS → In progress

GENERAL (3/3)

LOWLIGHTS:

- Define process how the changes in SVC3 (holes, fixation at body structure) will be implemented
- Torque value definition
- Thermal bracket definition for connection to lwr ctr bracket (FR bumper)
- Delamination risk for first set of SVC3 solar body panels at high temperatures
- Supplier manufacturing engineers for powertrain required ASAP to progress assembly design
- Investigation of potential design optimizations of body structure for industrialization, cost down program and tolerance concept → potentially impact costs and timing

BODY CLOSURE (1/2)

HIGHLIGHTS:

- BC split structure → Done
- SVC3 design verification plan (DVP) responsibilities → Done
- SVC4 digital twin (DT) information → Done
- New bump stop integration → Done
- Front seal move infront → Done
- SVC3 deviation processes → Done
- Bump stop design / supplier confirmation → Done

BODY CLOSURE (2/2)

IN PROGRESS:

- Charger lid series quote
- Nomination supplier door panels
- Crash and safety: SVC3 material simulations
- SVC3 - 10 build plan
- Budget & budget change log update
- Conduct Jira roadmap training
- Coordination SVC3 - 03 and SVC3 - 05

LOWLIGHTS: None

EXTERIOR (1/5)

HIGHLIGHTS:

- Body holes check for SVC3 metal brackets → Done
- Start exchange of standard parts for SVC4 → Done
- Alignment with supplier for SVC4 fasteners → Done
- Provide detailed feedback / invite a meeting with the wading simulation supplier → Done
- Pedestrian protection (PEDPro) lack and research council for automobile repairs (RCAR) results blocking tool go → Done
- Check PVC sealing concept with body structure → Done
- Make the decision if lower center bracket retooling of the rear bumper is necessary for SVC3 → Done
- Prepare design release for 90% tool kickoff with design studio and supplier → Done

EXTERIOR (2/5)

- Receive feedback from computational fluid dynamics (CFD) simulation regarding open grille surface → Done
- Supply the final design for the air duct to ensure the feasibility of the bumper design → Done
- Create new CATPart for CD pillar foam → Done
- Bracket CD panel → Done
- Adapt fender bumper interface (of the fender) → In review
- Separate rear lamp components in BOM → Done
- Separate headlamp components in BOM → Done
- Update HL/bumper interface → Done
- NVH optimization B-pillar → Done
- Waterfall cover design optimization → Done
- Confirm part deliver and check the parts with supplier → Done
- Virtual build → Done

EXTERIOR (3/5)

- Define tool mods for gluing → Done
- Bring not-ordered-parts to 0 → Done
- Cost down sprint for investment → Done
- BOM cost - cross check estimation/quotation/ordered attribute → In review
- Describe the ticket writing on the Confluence onboarding page → Done
- Body holes check for SVC3 holes → In review

IN PROGRESS:

- Finalize fixation concept of FR bumper & CL (decide between screw and pushpin) → In progress
- CAD rework of the fender bracket for the new screw fixation between bumper and fender → In progress

EXTERIOR (4/5)

- Headlamp & taillamp: connector / harness- terminal update → In progress
- B-pillar optimization → In progress
- Impact on technical topics due to updated timeline → In progress
- Measurement equipment → In progress
- SVC3 - system maturity levels → In progress

EXTERIOR (5/5)

LOWLIGHTS:

- Labcar part testing
- Definition of thermal bracket for connection to lwr ctr bracket (FR bumper)
- Replace CD-pillar cover clips
- Align on automotive electromagnetic compatibility (EMC) topics
- Finalize windscreen cover assy design
- Sourcing - windshield cover drain hoses
- Investigate new shield to reduce the amount of water in the rear undertray

BODY STRUCTURE

HIGHLIGHTS:

- Update SVC4 fastening assy → Done
- Distance between A/B/C pillar and sill profile → Done
- Documentation for the plug & pad plan for supplier → Done
- Documentation for the sound deadernes → Done

IN PROGRESS: None

LOWLIGHTS:

- Investigation of potential design optimizations of body structure for industrialization, cost down program and tolerance concept

INTERIOR

HIGHLIGHTS: None

IN PROGRESS:

- Timing plan alignment: next steps with suppliers
- CCB & IP interface tolerances
- SVC3 provision assembly instructions
- IP cables to center information display (CID)

LOWLIGHTS:

- I/P, console, door trim design verification plan (DVP) completion
- Delay delivery of supplier parts

INFOTAINMENT (1/2)

HIGHLIGHTS:

- Requirements documentation for 2 & 3 ES P → Done
- CAN message to align with present CAN mix → Done
- HVAC and power, energy CAN details to be used for solstice day → Done
- Infotainment Head Unit (IHU) system architecture → Done
- Software release plan for SVC3 → Done
- Infotainment head unit
  - First software release by supplier released and currently being validated
  - Beta units for SVC3 arrived at Sono HQ currently being assessed by team

INFOTAINMENT (2/2)

IN PROGRESS:

- SVC3
  - Some component deliveries still delayed due to COVID-19 lockdowns in China
  - Resolve FM antenna CAD to reflect cable routing
- Update parking aid item definition
- Sion 12V energy consumption
- Wiring harness for infotainment team

LOWLIGHTS: None

THERMAL

HIGHLIGHTS:

- Air flow velocity in HVAC → Done
- Software released for SVC3 → In review
- Outlook market vehicles functionality → In review

IN PROGRESS:

- Timeplan thermal regarding supplier lead times for SVC4 and series → In progress
- Moss testing and geometric change for SVC4/5/series → In progress
- Alignments with interior and BIW team → In progress

LOWLIGHTS: None

CHASSIS

HIGHLIGHTS:

- Steering history → Done
- VD Inputs for rear axle K&C results latest → Done
- Budget update Q1 → Done
- Chassis budget update → Done
- Update knuckle supplier timeline for the project → Done

IN PROGRESS:

- VD inputs from engineering supplier → In progress
- Sion chassis history → In progress

LOWLIGHTS: None

E/E (1/10)

HIGHLIGHTS:

- Update Sion requirements for high beam
- Clamp control strategy for SVC3
- Update the current values for low voltage topology
- Define front safety test plan for SVC3 - labCar and analyze needs
- Transfer big to mini roadmap
- Jira premium SVC4 & transfer big to mini roadmap
- DCU high voltage fuse re evaluation
- HVAC blower vary voltage study
- New strategy control for EDU and HV battery wake up sequence
- EPS EDS requirement setup with latest input

E/E (2/10)

- Development interface agreement (DIA) with EPS supplier
- Steering wheel buttons
- SVC3 - DVP responsibilities
- First responder general assembly
- Tasks for the closings Q1/22
- Review automotive electromagnetic compatibility (EMC) specification

E/E (3/10)

IN PROGRESS:

- E/E Integration
  - Body Electronics
    - Body control module (BCM) Software test at 80% completed. Bugs were discovered, working with supplier to fix them
    - Icons at hazard light switch were printed with a 90 degree rotation. Solution to be found
    - Seat heating strategy needs to be reviewed

- Wiring Harness
  - Missing some grommets → next week supplier will deliver

E/E (4/10)

- CAD Integration
  - Harness connector instance ID's have been reset → Working with the complete vehicle team to have the node names re-added.
  - Errors occurred with bringing SVC3 harnesses across to SVC4 BOM → probably solved next week
  - Low frequency (LF) antennas need location update for SVC4 after discussions with supplier → probably solved next week
  - Upgraded a V6 profile in 3Dx for EDS

E/E (5/10)

- Key fob housing
- Test body control module (BCM) software release D003
- Create test case to validate electrical power steering (EPS) software for the 1st software release
- WSS and vacuum sensor electrical interface requirements to supplier
- Emergency button in a vehicle to kill ECU's
- Roadmap training 1 & 2
- Commissioning plan for SVC3
- Yellow board
- Yellow board & Lab Car: make status quo available to Group Sion
- Acoustic Vehicle Alert System (AVAS) interface delivery
- Cruise control spec update

E/E (6/10)

- Vehicle Control Unit (VCU) lifetime
- Ground distribution E/E computer aided engineering (EECAE) setup
- SVC3_DBC (can database container) updates
- Development interface agreement (DIA) with electronic stability control (ESC) supplier
- Advanced driver assistant systems (ADAS) requirement on electric power steering (EPS)
- High voltage cables channel bracket for SVC4
- High voltage assembly illustrations
- Perform checks for low voltage harnesses
- Covering ground points for e-coating protection (SVC3)
- Packaging position for Schuko socket SVC4
- Deviation request for low frequency (LF) antenna mounting
- Media gateway workshop with supplier

E/E (7/10)

- Body control module (BCM) E/E design verification (DV) plan
- Discuss with supplier for bootloader and reflash requirements
- Integrated printed circuit board (PCB) schematic
- Electronic power steering (EPS) and electronic stability control (ESC) 12V energy consumption
- Reliability targets vehicle control unit (VCU)
- Acoustic vehicle alert system (AVAS) E/E design verification (DV) plan
- DTs for SVC4 interior switches
- Vehicle control unit (VCU) E/E design verification (DV) plan
- Reverse camera module (RCM) system specification
- Update SVC4 CAD - acoustic vehicle alert system (AVAS)
- Complete PT assembly illustration (high and low voltage section)

E/E (8/10)

- Event data recorder (EDR) requirement implementation timeline & additional signals definition.
- SVC3 assembly instructions provision
- New topology with gateway - decision matrix
- Harness and connectors to integrate advanced driver assistant systems (ADAS) components in labcar
- BodyCAN update: steering column control module (SCCM), body control module (BCM) and vehicle control unit (VCU) updates

E/E (9/10)

LOWLIGHTS:

- Wiring Harness
  - Finding suppliers for connectors etc. is still difficult, due to the difficult supply situation → Procurement and supply chain management is helping → Solution for Yellow Board 1:1.
  - Wiring supply

- CAD Integration
  - Unfamiliarity with V6 (CAD team will plan to have a one week training session with each of them)

E/E (10/10)

- Routing SVC4
- Circuit for additional crash input modification
- Cyber security topic related to rear camera module (RCM)
- Rear camera module (RCM) diagnostics spec
- Reliability targets for rear camera module (RCM)
- Rear camera module (RCM) E/E design verification (DV) plan

POWERTRAIN (1/3)

HIGHLIGHTS:

- Building 1D vehicle performance & efficiency model to generate powertrain status for SVC3 and series
- Taking over HV functional architecture forum and driving powertrain network architecture topics
- Moving EDU forward by 8 mm to resolve dynamic clash with steering column looks feasible (work in progress)
- Timing plan (strength targets, consultancy, design freeze, validation) agreed with supplier for powertrain mounts sand cast parts to support SVC3 and SVC4 and clear
- 2 new team members onboarding successful

POWERTRAIN (2/3)

IN PROGRESS:

- Lifetime study for towing feasibility kicked off with supplier
- Solution for chassis CAN on vehicle control unit (VCU) still WIP (3 options being explored)
- CAD endstop - check
- SVC3 powertrain system test facilities - part 1
- Sand casted EDU brackets optimization
- Repositioning torque rod for SVC4
- Vehicle control unit (VCU) testing at supplier
- Parts location
- Attributes check SVC4 in 3Dx

POWERTRAIN (3/3)

LOWLIGHTS:

- Supplier manufacturing engineers for powertrain required ASAP to progress assembly design.
- CAD License → need support here from PM
- FuSa driveshafts → update PPAP
- Select test facility provider
- Switch module CAD design for LabCAR
- EDU translation investigation

BI-DIRECTIONAL (1/2)

HIGHLIGHTS:

- First 2 DCUs from supplier are delivered
- The DC charging function will be implemented in the parts mid June

IN PROGRESS:

- Update Onboard Charger (OBC) tech spec by supplier
- Diagnostic requirements
- E/E design verification plan (DVP) for SVC3
- Test standards - E/E - engineering analysis software (DESS)

BI-DIRECTIONAL (2/2)

LOWLIGHTS:

- Test standards – E/E – engineering analysis software (DESS)
- Distribution and charging unit resource planning
- Distribution and charging unit hiring development engineer
- Impact on technical topics due to updated timeline
- Distribution and charging unit (old name → OBC) design verification plan
- Power line communication design verification plan

HV BATTERY (1/2)

HIGHLIGHTS:

- Cell testing with supplier progressing (dimensions, capacity, charge times)
- High voltage battery pack design verification plan close to being finalized
- High voltage battery workshop being kicked off to review key design issues and uptrain team
- Cell tab over temperature caused by supplier HV cables and not cell tab welds
- HV battery sprints improved by using Jira board

HV BATTERY (2/2)

IN PROGRESS:

- Latest timing from supplier does not meet build timing → In progress
- Working on plan with supplier to improve timing → In progress
- Cell temperature delta issue during charging and heating → In progress
- Pack serviceability → In progress

LOWLIGHTS:

- Headcount
- Diagnostic topics for SVC3

NVH (1/2)

HIGHLIGHTS:

- Design support NVH topics (brackets and mounts) torque rod adjustments + tunable end stops design → Done
- Buck testing preparation with package owners → Done
- Static load testing organization: supplier identification → Done
- Instrumentation procurement - NVH acquisition 8chan mobile system → Done
- Cathodic dip coating (CDC/KTL) and General Assembly NVH support organization → Done
- Interior - acoustic pack supplier support → Done
- Review and conclusions on SVC3-SVC4 solar panels simulations → Done
- Discuss door trim to door panel interface → Done
- Tire specifications data (noise results) to NVH → Done
- Materials list for SVC3 support - RFQs and POs → Done

NVH (2/2)

IN PROGRESS:

- Design verification plan update to new timeline
- Vehicle testing procedures writing
- Purchasing of little equipement NVH testing
- Manage a suitable "free" bearing for the buck

LOWLIGHTS: None

WEIGHT MANAGEMENT (1/2)

HIGHLIGHTS:

- Estimated and calculated weight review: interior → Done
- Estimated and calculated weight review → Done
- Budget review: constant velocity (CV) "Testing & Validation" → Done
- Intelligent quality management - SVC4 → Done
- Intelligent quality management - SVC3 BOM → Done
- Benchmark: EV axle distribution → Done
- Strengths, weaknesses, and trends (SWT) with scenarios → Done
- SVC3 BOM → Done
- Mass list: new template → Done

WEIGHT MANAGEMENT (2/2)

IN PROGRESS: None

LOWLIGHTS: None

RECYCLING (1/2)

HIGHLIGHTS:

- Draft plastic and rubber parts marking standard → Done
- High voltage qualification → Done
- Discuss specs for recyclates with material supplier → Done
- Next steps with supplier → Done
- Update solar panels (SP) recycling with supplier → Done
- International material data system (IDMS) - guideline Sono → Done
- Sprint process adjustments → Done

RECYCLING (2/2)

IN PROGRESS: None

LOWLIGHTS: None

HOMOLOGATION (1/3)

HIGHLIGHTS:

- Prepare control plan for CM1 interface → Done
- Create process draft: "Integration of homologation relevant requirements" → Done
- Compare CMP with example from supplier → Done
- Field observation/Market Surveillance (concept description) → Done
- Forms for initial assessment to be included in negotiations with an external manufacturer → Done
- Evidence for the implementation of supplier selection, nomination and approval → Done
- Responsibility clarification of requirements management → Done
- Set up control plan → Done
- Create process draft: "React to approval relevant changes" → Done
- Create process draft: "Ensure product and production conformity" → Done
- Examples for traceability → Done

HOMOLOGATION (2/3)

- Deviation management → Done
- Issue management → Done
- Product integrity: product safety circle and subsequent processes → Done
- Obtain technical data and descriptions → Done
- Vehicle labels necessary for SVC3 → Done
- Sprint cross-functional: recognise the current status of descriptions that can be used for the development handbook → Done

IN PROGRESS:

- Generate and archive the information document → In progress
- Transmission and application to the DTS → In progress
- Filling the information document → In progress

HOMOLOGATION (3/3)

- Create in BBT → In progress
- Obtain technical data and descriptions → In progress
- Obtain type approval drawings (2D, EXT) → In progress
- Generate and archive the information document → In progress
- Transmission and application to the diversified technology systems (DTS) → In progress

LOWLIGHTS: None

FUNCTIONAL SAFETY (1/3)

HIGHLIGHTS:

- Checking safety of the Intended functionality (SOTIF) capabilities of different companies → Done
- Recheck timeline & resources based on changes in SOP and internal/external support
- Review the supplier and add some safety goals for programmable logic controller (PLC)
- Programmable logic controller (PLC) automotive safety integrity level (ASIL) rating- meeting with supplier → In review
- Preparation of a document with safety goals, automotive safety integrity level (ASIL) rating , safe states and external measures for drivetrain supplier → In review
- On board charger development interface agreement (DIA) alignment → In review
- Aligning timeline with testing squad → In review
- Development interface agreement (DIA) alignment with suspension supplier → In review

FUNCTIONAL SAFETY (2/3)

- Align homologation expectation until SOP '23 → In review
- Define roles mentioned in the process descriptions → In review
- Solar power / cross-functional Q/A - solar power wiring → In review
- Solar power / cross-functional Q/A - HV cut off → In review
- Solar power / cross-functional Q/A - loss of HV → In review

FUNCTIONAL SAFETY (3/3)

IN PROGRESS:

- Update Item definitions status → In progress
- Squad level OKR 2022 → In progress
- Solar power / cross-functional Q/A - solar power in crash scenario → In progress

LOWLIGHTS: None

CRASH & SAFETY (1/2)

HIGHLIGHTS:

- Crash and safety - results to supplier → Done
- Status update with body structures release 0.1 → Done
- Keyhole opening for headliner clip in roof header → Done
- Tack weld (Heftnaht) on z-bar → Done
- Update door-in-white → Done
- Update seatbelt model due model v004 → Done
- Headliner clip resistance - evaluation of current development state → Done
- Abolition of HVAC and interior air ducts for IPs intended to be used in sled testing → Done
- Charger lid - requirement "functional after crash" → Done
- Crash and safety - SVC3 status review with supplier - low speed → Done

CRASH & SAFETY (2/2)

- Updated front end crossmember → Done
- Crash vehicle usage - crash sensing - SVC3-11 + 12 → Done

IN PROGRESS:

- Crash and safety - SVC3 DR status reporting → In progress
- OOP tests airbags requirements → In progress
- Material and joining validation → In progress
- Component tests pre-simulation → In progress
- SVC3 body structure component testing → In progress

LOWLIGHTS: None