

UNIC-CASS Design-to-Tapeout Meetup #7 (Oct. 30, 2024)

Top integration plan

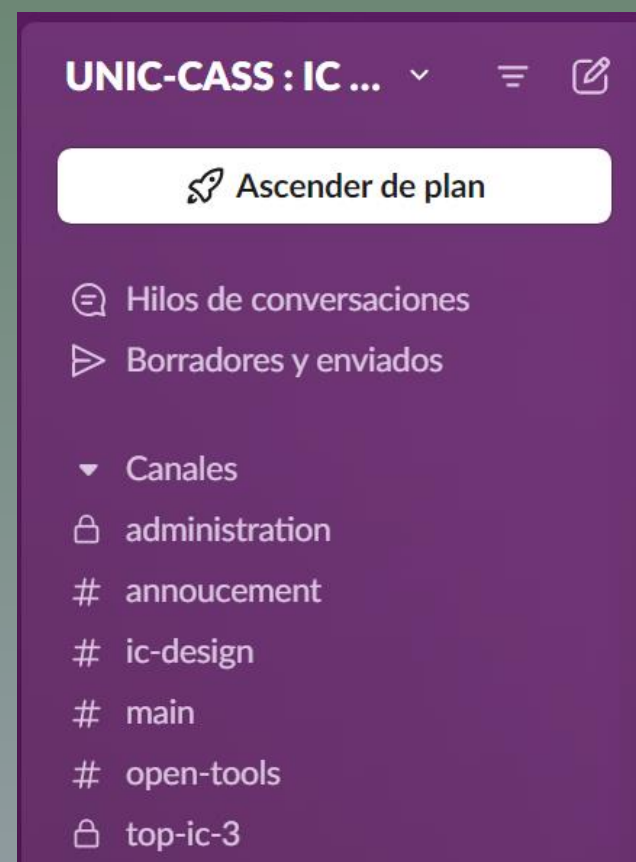
Presented by: D-to-T mentoring team



Design-to-Tapeout Mentoring

Communication and organization

- ▶ Bi-weekly mentoring sessions
- ▶ Slack Channel
- ▶ UNIC-CASS website



UNIC-CASS Slack channel:
<https://unic-cass.slack.com/>

A screenshot of the UNIC-CASS website. The page title is 'Universalization of IC Design from CASS (UNIC-CASS)'. The main heading is 'Universalization of IC Design from CASS (UNIC-CASS)'. Below the heading is a paragraph describing the program: 'The Universalization of IC Design from CASS (UNIC-CASS) program is a structured end-to-end Integrated Circuit (IC) design-to-test experiential learning. The program aims to improve the know-how and accessibility to IC Design technologies for enthusiasts and design communities worldwide in low-to-middle-income and/or low-opportunity countries. This program is of strategic cooperation with the Solid-State Circuits Society serving geographical-complementing locations.' Below this is a link to 'UNIC-CASS Mentoring Session Recordings & Presentations'. The page also features a section titled 'UNIC-CASS Materials & Tools' with several buttons: 'GitHub', 'UNIC-CASS Slack Channel', 'CASS Microlearning', 'UNIC-CASS Training Materials (GitHub)', and 'UNIC-CASS Mentoring Session Recordings & Presentations'. The bottom of the page contains a paragraph about the program's goals and a link to the recording and presentation page.

Recordings and presentations: <https://ieeecas.org/unic-cass-mentoring-session-recordings-presentations>

UNIC-CASS educational material



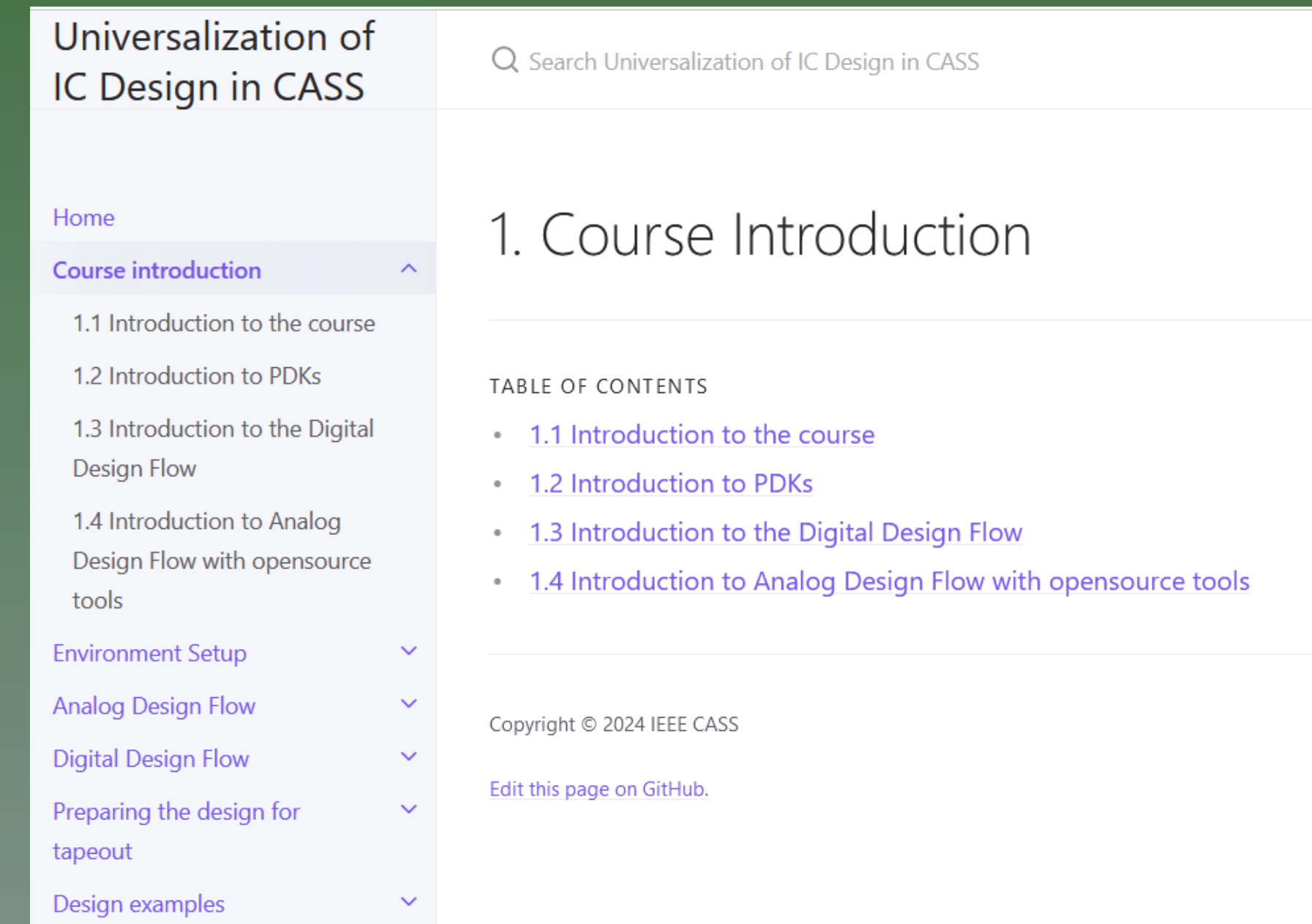
Universalization of IC Design from CASS (UNIC-CASS)

9 followers <https://ieee-cas.org/universalization-i...>

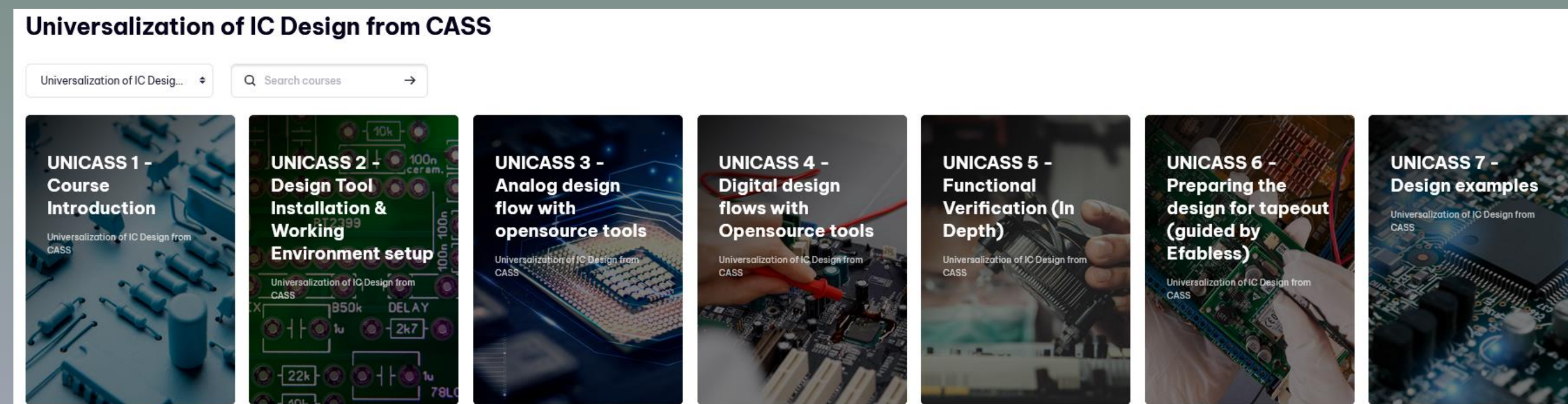
Source: <https://github.com/unic-cass/unic-cass.github.io>

- New videos made by volunteers following the lecture notes
- Lecture notes in Markdown format
 - ⇒ You can contribute by updating them
- New document theme using Just-the-docs Jekyll theme
- Latest materials in Github
- Materials in CASS-MiLe will be updated into v2.0 soon
- Add instructions for Klayout in analog design flow

- Layout
- DRC
- LVS



Website: <https://unic-cass.github.io>



CASS-MiLe: <https://ml.ieee-cas.org>

Design-to-Tapeout Mentoring Team 2024



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**Deni Alves
UGA (France)/UFSC (Brasil)**



**Francisco Brito
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Hanoi (Vietnam)**



**Rodrigo Wuerdig
KUL (Belgium)/UFRGS (Brasil)**



**Jorge Marin
UTFSM (Chile)**



**Sergio Bampi
UFRGS (Brasil)**

Main Design-to-tapeout milestones

- ▶ **First design review (mock tapeout)**
 - Purpose: Prepare the teams in advance for the final tape-out phase
 - Date: Last week of September
- ▶ **Second design review (first DRC/LVS clean design delivery)**
 - Purpose: Verify feasibility of designs and top integration
 - Date: Second half of October
- ▶ **UNIC-CASS tapeout**
 - Purpose: final delivery of top designs
 - Date: November 8th

Design-to-Tapeout Mentoring

Weekly mentoring sessions 1

Activities	Date/ Deadline	Purpose/ comments	Your Deliverables (provide info/links on your GitHub)	We will provide/handle
1st Meet-up	Aug 12, 1pm-2pm UTC	Kick-off meeting	N/A	N/A
Weekly meet-ups	21/8,28/8,4/9, 18/9 1pm-2pm UTC	Mentoring and Design groups to present progress. Short presentations on topics such as Caravel/Caravan, best practices, pitfalls to avoid.	N/A	Slides and videos will be posted on the UNI-CASS website
1st Design submission [Mock tape-out]	Sep 25	Prepare the teams in advance for the final tape-out phase	Passing pre-check report	1. Detailed instructions for pre-check 2. Example files
1st Design Review & Feedback	Oct 2	Provide feedback and advice for the next stages	N/A	Feedback on the pre-check work
Weekly meet-ups	23/10, 30/10, 6/11 1pm-2pm UTC	Focused mentoring + preparation for final tape-out + evaluate status of potential drop-outs	N/A	Slides and videos will be posted on the UNI-CASS website

Design-to-Tapeout Mentoring

Weekly mentoring sessions 2

Activities	Date/ Deadline	Purpose/ comments	Your Deliverables (provide info/links on your GitHub)	We will provide/handle
2nd Design submission		Verify feasibility of designs and top integration Oct 21	Detailed circuit description (pinout, area and functionality) + DRC/LVS reports on Efabless platform	Check reports to confirm all blocks are LVS and DRC clean.
2nd Design Review & Feedback from mentors		Provide feedback and advice for the final stages Oct 23	N/A	Feedback on the individual designs + advice for top merge
Efabless pre-check + tapeout		Complete tape-out work on Efabless platform Nov 8	Deliver COMPLETE Caravel/Caravan drop-ins to Efabless final check	Provide assistance to tape-out leaders within the teams
Tape-out		See: Nov 11 https://efabless.com/chipignite	N/A	List of winner teams included in this tapeout List of unfinished designs to candidate for 2025 UNIC-CASS program
Chip delivery date		See: Apr 11 https://efabless.com/chipignite	N/A	Chip shipping and testing logistics

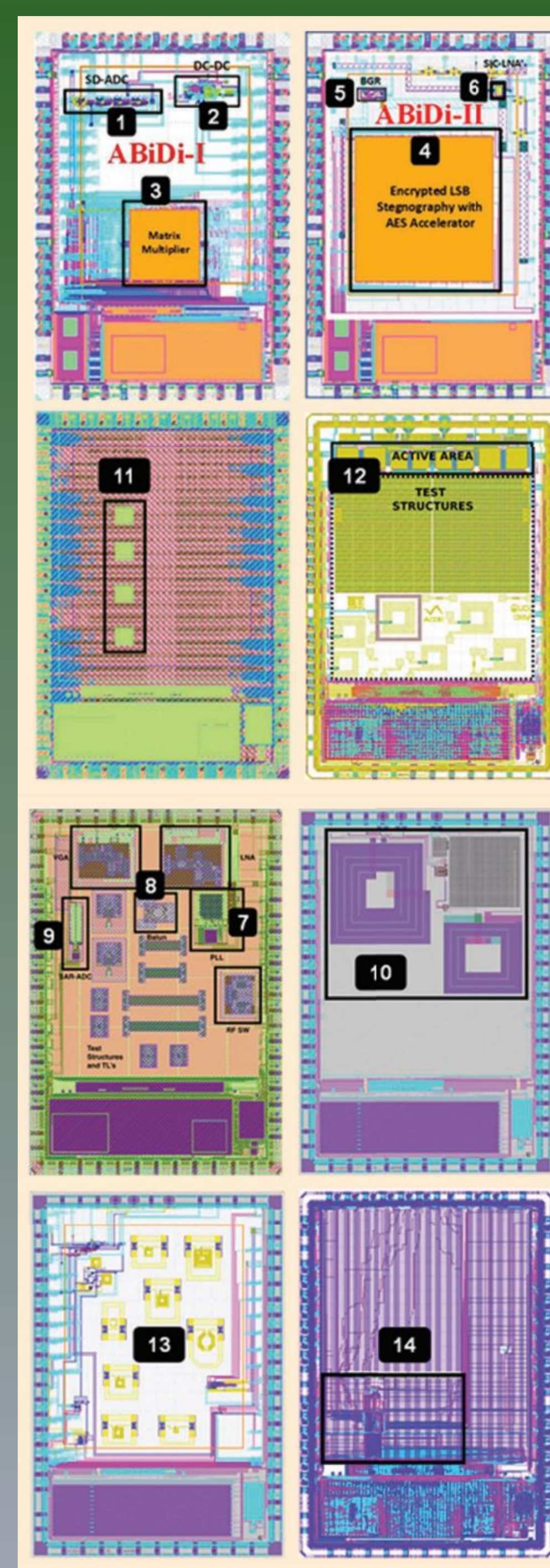
Additional remarks I

▶ Firm deadlines!

- November 11 is the hard tapeout date provided by Efabless
- Please plan according to the proposed activities: design submission and reviews (see schedule)
- These last mentoring sessions will be focused on top integration discussions

Additional remarks II

- ▶ **UNIC-CASS uses multi-block caravels**
 - Area and pin count are limited for each project
 - Exact numbers will be adjusted as we see progress
 - Minimize merge work as much as possible → communication among teams is essential!



Additional remarks III

- ▶ **Finalizing the design is not the finishing line!**
 - Efabless pre-checks
 - Tapeout checks
 - Based on previous experience, some issues can arise at these steps
 - Allocate extra time to understand and execute this
 - Mock tapeout!

NEXT STEPS REQUIRE EXTENSIVE COLLABORATION AMONG TEAMS

Top integration leader per ICx

- ▶ IC1-Analog: Juan Sebastián Moya
- ▶ IC2-Analog: Lohan Atapattu
- ▶ IC3-Digital: Rafael Oliveira
- ▶ IC4-Digital: Noble
- ▶ IC5-Digital: Duy-Hieu Bui

Current actions by design teams

- ▶ **Top integration leader, area and pinlists should be defined by now**
- ▶ Start executing plan for integration, lead by top integrator in each ICx
 - ICX Project creation
 - Create common ICx repo
 - Define top floorplan
 - For analog:
 - Generate top schematic
 - Generate top layout
 - Precheck + tapeout on Efabless platform
 - For digital:
 - Top script

Current actions by design teams

- ▶ Each top integrator + DtoT mentor per chip should coordinate a design review with Anton Maurovic from Efabless no later than Tuesday 5/11 on the following link:
 - <https://meetings.hubspot.com/anton-maurovic/chipignite-onboarding>
- ▶ Top integration leaders and DtoT mentors can contact Efabless in case of urgent questions regarding Chipignite Onboarding (cc Rodrigo, Jorge and Sergio)
 - nathan.pier@efabless.com
 - anton.maurovic@efabless.com



CAS

IEEE CIRCUITS AND SYSTEMS SOCIETY

For more information and to join CASS, visit:

IEEE-CAS.ORG