

NTF

NORDIC TEST FORUM

invites to

TestForum 2010

*A Nordic event for exchange of experience and know-how
within the field of production test of electronics.*

*Meet colleagues and experts, gain knowledge about trends
and best practices in the area of test of electronics.*

**Tuesday and Wednesday, November 23rd and 24th, 2010
First Hotel Ambassadeur, Drammen, NORWAY**



TestForum 2010, November 23rd and 24th Drammen, NORWAY

The turmoil and decline of last year seems to be behind us and there is now greater optimism in the industry. Let us hope this is a lasting trend.

Our keynote speaker this year is a faithful contributor to TestForum. Michael Smith is now an independent consultant. His topic is "The Real Cost of Not Testing!" Little focus has been given to this, compared to the cost of testing. I am sure this keynote will be most interesting.

There is a lot happening in the area of boundary scan these days. Last year the IEEE 1149.7 also known as cJTAG was released. This standard makes it possible to use a reduced pin-count Test Access Port. IEEE 1149.8.1 is addressing testing of non-boundary scan devices on in-circuit testers. There is a new revision of the IEEE 1149.1 standard released this year. IEEE P1687 or IJTAG focus on controlling test resources inside devices. We will learn about the latest updates to these standards.

We will have several presentations covering novel uses of boundary scan testing.

Agilent has recently released a wide range of products on the PXI platform as well as on the new AXIe platform. Many of the presentations will touch on these and other instrument platforms. This will also be the topic of the panel debate.

ATML (Automatic Test Markup Language) defines a standard exchange medium for sharing information between components of automatic test systems. This information includes test data, resource data, diagnostic data, and historic data. Juku Lab, The Technical University of Tallinn and Virinco will give us more information and share their experiences with the standard.

The venue for TestForum 2010 is First Hotel Ambassadeur in Drammen just outside Oslo. This location has good connections with Oslo and Oslo Airport and is not far from Sandefjord Airport.

On behalf of the committee I wish you welcomed to TestForum 2010.

Yours sincerely



Knut Båstoløkken
Chairman of *Nordic Test Forum*

Key Note Speaker***Michael Smith***

Independent consultant

Michael Smith has over thirty years of experience with Automatic Test and Inspection Equipment with Marconi, GenRad and Teradyne Inc. With a background in sales, marketing and product development, he has written numerous papers and articles and chaired iNEMI's Test and Inspection Roadmapping Group from 2000-2006. He is currently a consultant to a number of companies on Test and Inspection Strategies.



Nordic Test Forum in Brief

Test Forum is an annual event that *Nordic Test Forum (NTF)* runs every fall/early winter. NTF may also run thematic events during a year, but these are focused events addressing basically only one topic area, each in the area of test and inspection of electronics, whereas TestForum typically has 3-thematic areas and cover the broader balance of test and inspection as well.

Test Forum has its roots back the late eighties, where it originated as an event for the Norwegian electronics industry. However, from the late part of 2001 a group of people from Sweden, Norway and Denmark established the network, *Nordic Test Forum*. Later on, this activity (including the *Test Forum* event was extended to include all the Nordic countries. The language of the official presentations is English. Content and focus of the Test Forum varies over time, but always within topic areas in focus at a given point in time.

Test Forum has its main emphasis on issues relevant to production managers, engineers and technicians working in the fields of production, test, inspection and validation of electronics. At Test Forum events we offer technically relevant presentations on methodology, tools, modules/instruments and available technology. The interaction between users and suppliers within the focus areas is an important asset of TestForum, and this balance and interaction is pursued in presentations, panel discussions, and in the planning of the events.

Test Forum Aims at:

- Creating and sustaining a relevant, balanced and coherent interaction between users as well as between users and suppliers of solutions for test, inspection, validation and production of electronics.
- Providing an up-to-date view on new methodologies and tools for relevant test, inspection, validation and production of electronics.
- Establishing a relevant and balanced view on equipment, systems, tools and software from tool vendors in the domain.

Target Audience of Test Forum

Engineers and technicians, managers and planners within the fields of electronics production and test, inspection and validation. Includes also decision makers in organizations that procure equipment, tools and systems for production and test, inspection and validation of electronics.

Executive Committee of TestForum and NTF

Knut Båststøløkken	Kitron AS (Chairman)
Birger Schneider	National Instruments Engineering ApS (Treasurer)
Bjørn B Larsen	NTNU Department of Electronics and Telecommunications (Secretary)
Stig-Gunnar Jensen	Flextronics International Norge AS
Bengt Magnhagen	Svensk Elektronik
Mick Austin	JTAG Technologies Finland
Jürgen Sedlacek	Alvetec KonTest AB
Timo Karhu	Nokia Siemens Networks Oy
Artur Jutman	Tallinn University of Technology

Become a Member of Nordic Test Forum

If you are involved in production test, validation test, and inspection of electronics and your professional work is related to activities in the Nordic countries as a test professional, design engineer, manufacturer, supplier of solutions, consultant, etc., you may register as member of Nordic Test Forum (NTF) in order to benefit from:

- Exchange of know-how in testing
- Increased contact network in the Nordic countries
- Surveillance and information of International activities in the area of test and inspection
- Discounts at NTF seminars and Test Forum events
- Membership list

Please register on the WEB page: <http://NordicTestForum.org>

Test Forum 2010 Local Organizer

The local organizer is:

Knut Båstoløkken
Kitron AS
Tangen Allé 39
NO-4817 His
Tel.: +47 37 07 16 07
Fax.: +47 37 07 13 01
Email: Knut.Baastoloekken@kitron.com

In Association with

The Test Forum 2010 event is in association with the following Nordic organizations:



Technical Program of Test Forum 2010

Nordic Test Forum (NTF) Annual Assembly, November 22nd 2010

The NTF organization was established in 2001. Since then, it holds an annual general assembly a day before the Test Forum conference. This year it will be held on **November 22nd at 19:30**. The agenda and motions will be dispatched to the members in a separate mailing.

If you do not intend to participate in the Annual Assembly, the Test Forum 2010 starts with registration on November 23rd from 9:00 to 9:30.

Tuesday, November 23rd, 2010

Time	Titles	Speakers or additional info
9:00-9:30	Registration	
9:30-9:40	Welcome/Introduction	Knut Båstoløkken
9:40-10:40	Key Note Session	<i>Chairman: Knut Båstoløkken</i>
9:40-10:40	The Real Cost of Not Testing!	Michael Smith, Independent
10:40-11:20	Exhibitor presentation	<i>Chairman: Jürgen Sedlacek</i>
11:20-11:50	Coffee Break / Exhibition	
11:50-12:40	Session 1: Boundary Scan 1	<i>Chairman: Bengt Magnhagen</i>
11:50-12:20	IEEE 1149.7, 1149.8.1, 1149.1-2010, 1687 update	Artur Jutman, Testonica Lab / TU Tallinn
12:20-12:50	IEEE P1687 (IJTAG): Access Time Analysis	Erik Larsson, TU Linköping
12:50-13:50	Lunch	
13:50-15:20	Session 2: Functional Test	<i>Chairman: Birger Schneider</i>
13:50-14:20	BIRST Support of LXI & PXI Matrices	Shaun Fuller, Pickering
14:20-14:50	True flexible and modular test systems saves engineers time and money.	Peter van Oostrom, 6TL
14:50-15:20	New test applications enabled by FPGA technology	Vidar Grønås, NI
15:20-15:50	Coffee Break / Exhibition	
15:50-16:00	Session 3: Functional Test continued	<i>Chairman: Artur Jutman</i>
15:50-16:20	Modular solutions for the future	Bjørn Birkeland, 4Test
16:20-16:50	News from Conferences	<i>Chairman: Artur Jutman</i>
16:50-17:15	Fruit & Refreshments / Exhibition	
17:15-19:00	Panel debate: <i>The future of PXIe, LXI and AXI - shine or decline?</i>	<i>Panel moderator: Birger Schneider</i>
20:00	Dinner at First Hotel Ambassadeur	
22:30	Social get-together in the Bar at First Hotel Ambassadeur	
Time	Titles	

Wednesday, November 24th, 2010

Time	Titles	Speakers or additional info
9:00-10:30	Session 4: Functional test 2	<i>Chairman: Mick Austin</i>
9:00-9:30	The Challenges in 3D Video Testing	Birger Schneider, NI Engineering
9:30-10:00	In System Characterization and Test Using On-Chip Capture Control to Generate Failing Frequency Signatures	Bill Eklow, Cisco
10:00-10:30	A coverage tool to explore the question "What does it mean when the board test passes?"	Lars Kongsted-Jensen, EP-TeQ
10:30-11:00	Coffee Break / Exhibition	
11:00-12:30	Session 5: Boundary Scan 2	<i>Chairman: Bjørn B. Larsen</i>
11:00-11:30	Boundary scan test of <i>special</i> boards	Roger Hagebakken, Hapro
11:30-12:00	Advanced flash programming by processor assisted methods	Jan Heiber, Goepel electronic GmbH
12:00-12:30	Case study; Test solution for radio modems combining functional test and Boundary scan	Mick Austin, JTAG
12:30-13:30	Lunch	
13:30-15:00	Session 6: Test Strategies	<i>Chairman: Stig-Gunnar Jensen</i>
13:30-14:00	Test development at Kitron	Karl-Berge Rød, Kitron
14:00-14:40	ATML: Definitions and practice	Andres Mellik, Juku Lab / TU Tallinn Øystein Fallo, Virinco Tom Lomsdalen, Virinco
14:40-15:10	TBD	TBD
15:10-15:20	Closing Session: concluding remarks	<i>Knut Båtstøløkken</i>

Dinner and Social Get-Together

At 20:00, November 23rd we will enjoy a dinner in the hotel restaurant.

Exhibition

As usually, a mini exhibition will take place in frames of Test Forum event where vendors are welcome to present their tools and methodologies related to production test. Exhibitors can make arrangements with NTF about exhibition space. If nothing special has been agreed, a table of about 60x120 cm², as well as space for posters or similar material will be provided. Every exhibitor will be given 7-8-minute slot in the program for a brief introduction.

Registration and hotel booking

The **Conference Fee** is EUR 390 for NTF members, EUR 195 for students and EUR 425 for others. The fee includes participation, food and refreshments from Tuesday morning to Wednesday afternoon as well as forum proceedings on the USB memory. Exhibitors pay EUR 750, which also includes the participation of a single person.

The seminar fee will be invoiced directly to the organization, from which the participant comes. In the event of cancellation after the final registration date, or in the event of failure to appear, the entire fee is still due. On request, another person from the same organization can participate instead.

The hotel rooms are booked through the seminar registration, but the room rate is paid directly by each participant to the hotel (i.e. not included in the seminar fee). **The room rate** is NOK 895 single room and NOK 1095 double room per night **including breakfast**.

Booking of rooms at the conference hotel is **not** mandatory for participation at the conference.

The **registration deadline is Monday, November 8th, 2010**, in order to guarantee hotel room. **Registration after this date is also possible**. However, we cannot guarantee that hotel rooms will be then available

Registration for TestForum 2010 can be done through the NTF website by using the following link.

- <http://NordicTestForum.org>

Alternatively, one can contact the TestForum secretariat at

CHAMAJ Consult ApS
Skovgraensen 3
DK-2960 Rungsted Kyst
Denmark

Att.: Suzanne Holte
Tel.: +45-45570705
Email: suzanne@nordicestforum.org

Please indicate, whether you register as:

- | | |
|--|---------|
| • NTF member | EUR 390 |
| • A non-member | EUR 425 |
| • A student (with valid student ID) | EUR 195 |
| • An exhibitor, i.e. want to exhibit in the small exhibition | EUR 750 |

Please indicate whether you need a room at the conference hotel:

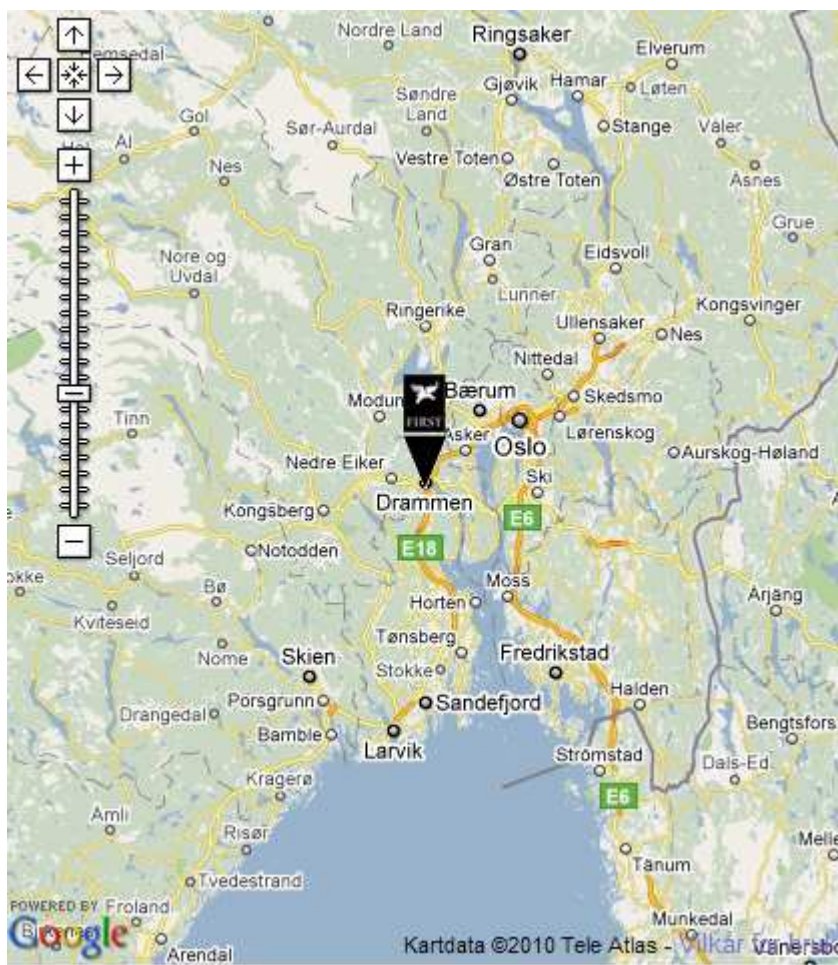
- Dates of arrival and departure
- Single or double room

TestForum 2010 Conference Venue

TestForum 2010 will take place at First Hotel Ambassadeur situated a 1 hour 15 min drive from Oslo Airport, Gardermoen, a 1 hour drive from Sandefjord Airport, Torp and a 40 min drive from down town Oslo. The hotel is situated next to Drammen railway station, which is a 1-hour train ride from Oslo Airport, Gardermoen.

Travelling to and from Drammen

Drammen is just a short distance from Oslo, the capital of Norway.



By plane

Drammen can be reached by flights to Oslo Airport, Gardermoen (OSL) or Sandefjord Airport, Torp (TRF).

Oslo Airport has connections to all major European cities. See <http://www.osl.no/>

The best way to get from Gardermoen to the hotel is by the airport express train; Flytoget. See “By train from Oslo Airport, Gardermoen”

Sandefjord Airport, Torp has daily connections to Amsterdam, Copenhagen, London, Milan as well as several Norwegian airports. It has less frequent connections to Barcelona, Bologna, Bremen, Edinburgh, Frankfurt, Liverpool, Prague, Riga, Rome, Warsaw and several other European airports. For more information see <http://www.torp.no/>

The best way to get from Torp to the hotel is by bus. See “By bus from Sandefjord Airport, Torp”

By taxi

Below are phone numbers to some taxi companies:

Taxi company	Area	Phone number
Oslo Taxi AS	Oslo / Oslo Airport	+47 02323
Norgestaxi Oslo AS	Oslo / Oslo Airport	+47 08000
Asker og Bærum Taxi	Asker and Bærum (between Oslo and Drammen)	+47 800 20 503
Drammen Taxi	Drammen	+47 05060
Vestfold Taxisentral	Sandefjord Airport, Torp	+47 33 42 02 00

Using taxi from the airports is not recommended due to the distance.

By bus

TIMEkspressen line 1 departs from Oslo bussterminal to Drammen 40 minutes past each hour and also 20 minutes past each hour during peak hours. TIMEkspressen line 10 and 14 may also be used. See <http://www.timekspressen.no/>

Several express busses stop in Drammen including Sørlandsekspressen and Grenlandsekspressen. See <http://www.nor-way.no/>

Please note that you might need a taxi or a local bus to get from the bus stop to the hotel.

By bus from Oslo Airport, Gardermoen

There are no direct bus connections between Oslo Airport and Drammen. Flybussen will take you from the airport to central Oslo including Oslo bussterminal. It has departures every 20 minutes.

See <http://www.flybussen.no/oslo/>

By bus from Sandefjord Airport, Torp

Torp-Ekspressen bus service corresponds with Ryanair and WizzAir routes and takes travellers between Sandefjord Airport Torp and Oslo bus terminal via Drammen. The ride takes ca. 1 hour and cost NOK 150 for a single one-way ticket and NOK 250 for a return ticket.

For more information on Torp-Ekspressen see <http://www.torpekspressen.no/>

By train

The hotel is next to Drammen railway station. There are frequent departures by local trains from Oslo S to Drammen. A single one-way ticket cost NOK 91. See http://www.nsb.no/?lang=en_US

By train from Oslo Airport, Gardermoen

The train rides take 60 minutes and there are 3 departures each hour. A single one-way ticket cost NOK 250.

OSL – Drammen

	Oslo Lufthavn	Lillestrøm	Oslo S	Nationaltheatret	Skøyen	Lysaker	Sandvika	Asker	Drammen
First departure	0536	0548	0558	0603	0608	0610	0618	0625	0636
Minutes past each whole hour	46*		05*						
	56	08	18	23	28	30	38	45	56
		06*		25*					
	16	28	38	43	48	50	58	05	16
	26*		45*						
	36	48	58	03	08	10	18	25	36
Last departure	0056	0108	0125	0127	0132	0134	0142	0149	0200

Drammen – OSL

	Drammen	Asker	Sandvika	Lysaker	Skøyen	Nationaltheatret	Oslo S	Lillestrøm	Oslo Lufthavn
First departure	0406	0418	0424	0432	0435	0439	0445	0455	0507
Minutes past each whole hour	26	38	44	52	55	59	05	15	27
							15*		34*
	46	58	04	12	15	19	25	35	47
							35*		54*
	06	18	24	32	35	39	45	55	07
						55*		14*	
Last departure	2326	2338	2344	2352	2355	2359	0005	0015	0027

* Departures every 10 minutes Monday to Friday 0615-2235, Sunday 1215-2315. Saturday departures every 20 minutes, ie, departures with star is not run.

For more details see <http://www.flytoget.no/eng/>.

By boat

Oslo have ferry connections with Kiel, Fredrikshavn and Copenhagen. Larvik south of Drammen have ferry connection with Hirtshals.

Kiel – Oslo and Hirtshals – Larvik is operated by Color Line. <http://www.colorline.com/>

Fredrikshavn – Oslo is operated by Stena Line. <http://www.stenaline.no/ferge/>

Copenhagen – Oslo is operated by DFDS Seaways. <http://www.dfdsseaways.no/>

By car

From Oslo

Follow E-18 from Oslo towards Drammen. Take exit number 25 from E-18 towards Drammen S after passing the bridge over Drammen. At the roundabout, take the 3rd exit towards Sentrum.

Follow the instructions “In Drammen”

From south

Follow E-18 towards Oslo. Take exit number 25 from E-18 towards Drammen at Bangeløkkakrysset after passing Kleivene tunnel. At the roundabout, take the 1st exit towards Sentrum.

Follow the instructions “In Drammen”

From west

Follow E-134 towards Oslo. At the first roundabout after Strømsås tunnel, take the 2nd exit towards Sentrum.

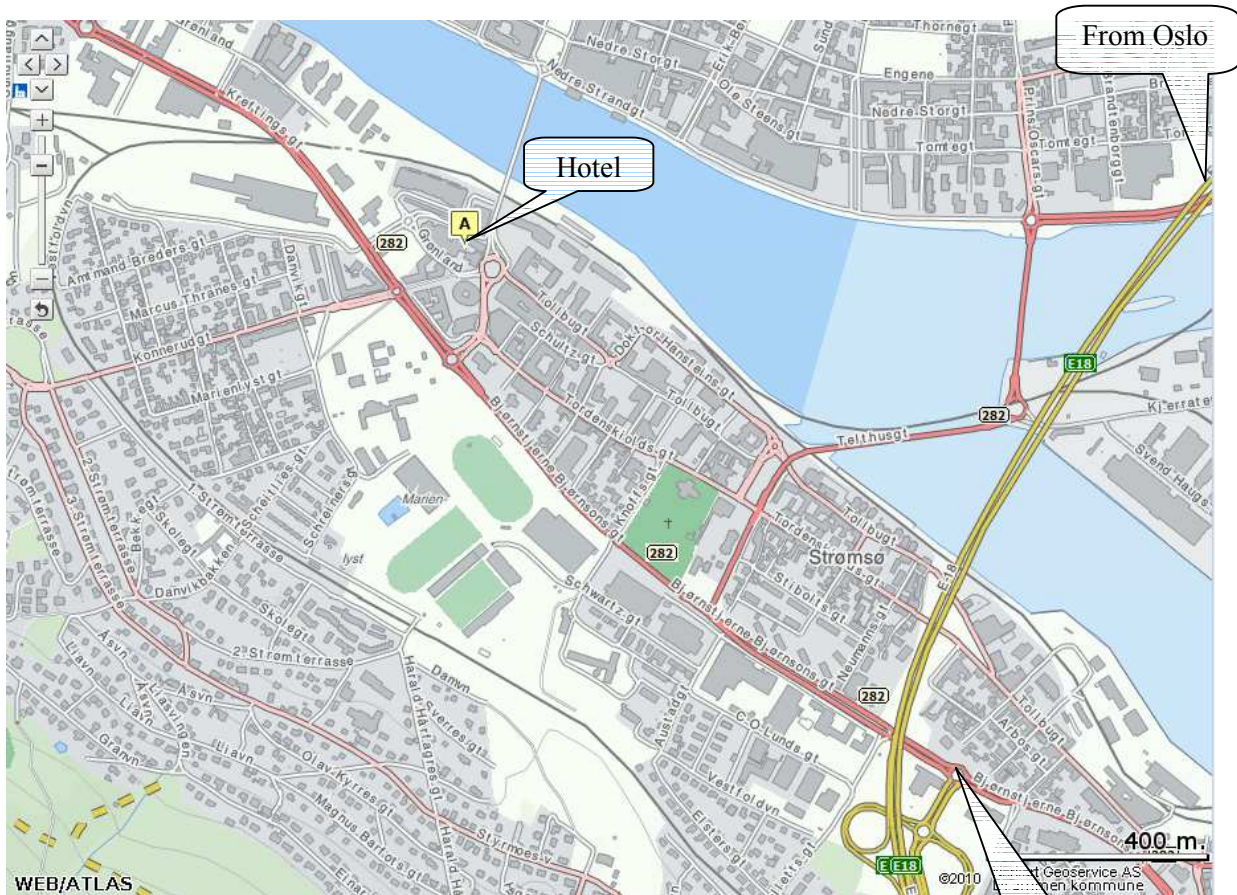
Follow the instructions “In Drammen”

In Drammen

At the roundabout on route 282, take the 2nd exit onto Bjørnstjerne Bjørnsons gate / route 282 heading to Sentrum. Continue to follow Bjørnstjerne Bjørnsons gate for ca. 1.2 km. At the roundabout, take the 1st exit towards Drammen St. Turn slight left in Tordenskiolds gate. At the roundabout at Strømsø Torg, take the last exit down Grønland street. The hotel will be on your right.

First Hotel Ambassadeur

First Hotel Ambassadeur, located in the heart of Drammen, presents a striking blend of Neoclassicism and modern design. All rooms are individually styled and special attention is given to personal service and ambiance. The sleek, wood-hued restaurant-bar features an open fire and library. The conference facilities seat up to 400 and offer break-out rooms and a comfort zone.



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NO-3044 Drammen

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Fax: +47 31 01 21 11

E-mail: ambassadeur@firsthotels.no

Web: <http://www.firsthotels.com/en/Our-hotels/Norway/Drammen/First-Hotel-Ambassadeur/>

Train station: 150 m

Airport: 90 km/70km

GPS Coordinates: N59°44'24,46,"E10°12'08.19"





Welcome to TestForum 2010



Photos: VisitOSLO/Heidi Thon, VisitOSLO/Nancy Bundt, VisitOSLO/Erik Tresse, JDS Architects